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ABSTRACT

This issue of a journal on suggestive learning-teaching-therapy counseling within the procedural confines of Suggestology or Suggestopedia includes the following articles: "Suggestopedia in an American High School Setting" (Carl W. Pullen), a description of the use of Suggestopedia in a German class; "Optimizing the Presentation of Classroom Information" (Giselher Guttman), a report of research on effective information presentation; "Supplementary Report on the Austrian Experiment with Suggestopedia in Elementary Schools" (Franz Beer), reporting on work carried out in Australian elementary schools between 1974 and 1979; "Teaching Reading with Stories vs. Cognitive Hierarchy" (Renee Fuller), an essay in support of the notion that the story is the basic form of intellectual cohesion, and suggesting instructional applications for stories; and "Experimentation with the Lozanov Method in Teaching Word Retention to Children with Learning Disabilities" (Wally Nelson), a summary of a study with 6-to-8-year-olds. (MSE)

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THE JOURNAL OF SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

Volume 4, Number 4 **Winter 1979**

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THE JOURNAL OF SUGGESTIVE-ACCELERATIVE LEARNING AND TEACHING

Guidelines for Contributors

The Editor welcomes submission of manuscripts on an interdisciplinary nature relevant to all aspects of suggestive learning-teaching-therapy counseling within the theoretical and procedural confines of Suggestology and/or Suggestopedia. The JOURNAL OF SUGGESTIVE ACCELERATIVE LEARNING AND TEACHING will publish a wide variety of articles - including critical reviews, theoretical analyses, speculative papers, case studies, quasi-experimental studies, as well as reports of empirical research (basic or applied) of major significance. The basic focus is Suggestopedia theory, research and application.

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Suggestopedia in an American High School Setting

Carl W. Pullen
Indianola High School

Abstract

This author's 1979 *actfl* conference paper explains, in great detail, the use of Suggestopedia in a high school German class. The author also outlines some of the basic concepts of Suggestopedia.

A final question after a discussion of SALT (Suggestive-Accelerative Learning and Teaching) is always, "Is it a method of instruction or a philosophy?" The answer to that question is the start of this discussion, and then the answer will be explained.

Suggestopedia is a method of instruction based on the belief that all students can learn much more rapidly than they or their teachers imagine.

It is a method of instruction based on the belief that learning is relaxing, easy, and joyous.

It is a method of instruction based on the belief that all students are creative, whole persons; that the cognitive and affective domains of the personality are so interwoven that one domain cannot be affected without the other also being changed.

It is a method of instruction based on the belief that our classes are not filled with relaxed, joyous, creative students who have got it all together, because the school milieu tends to discourage that positive image of learning and learners.

It is a method of instruction based on the belief that if a different image of learning is suggested to students, they can react so that their own inner resources are tapped and they all can become great learners.

Benjamin Bloom, (1976), the American educator and educational theorist, bases the discussions in his book, *Human Characteristics and School Learning*, on the same beliefs. He states in the preface, "Most students become very similar with regard to learning ability, rate of learning and motivation for further learning - when provided with favorable learning conditions."

Suggestopedia is based on the theories and practices of Dr. Georgi Lozanov director of the Suggestology Research Center in Sophia, Bulgaria. While it is true that the key concepts of suggestopedia have been discovered, purported and supported by so many other writers and educators that his ideas are hardly revolutionary, Dr. Lozanov has used these concepts to develop a model of instruction that is at least refreshing, if not revolutionary, for teachers in American classrooms.

Before the adapted model of instruction used in the Indianola High School German classes is explained, it will be helpful to present the basic concepts upon which the model is based. The first of these is the concept of Suggestion-Desuggestion. This means that, in order for suggestions about learning and self-concept to have any effect on student performance, barriers that the students have built up against the tapping of their inner resources must be desuggested. These barriers are outlined by Dr. Lozanov as the critical-logical barriers (no suggestion will be effective that does not make sense to the student); the intuitive-emotional barriers (a suggestion must create a feeling of security and confidence in the student to be effective); and the ethical barriers (a suggestion may not be contrary to the students' ethical principles, if they are to act upon it). This means then, that in order for the students to enjoy learning, to be free from tensions, and to find learning easy, a teacher must devise a learning model in which he can lead the student along to accomplishment. And all of this must happen under standards of high regard for what is right.

A second concept of suggestopedia is described by Dr. Lozanov with the words translated as Authority-Infantilization. That is a poor choice of words because they smack of cultism and dictatorial classrooms. But Dr. Lozanov does not want a classroom-cult or a dictator-teacher at all. The relationship between teacher and student that he desires is one suggested by Earl Stevick in his book, *Memory, Meaning and Method* . He uses the transactional analysis concepts of nurturing parent and natural child to describe the relationship that will be most productive in the classroom. The students would perceive the teacher as one who 1) knows what is expected of the student, 2) knows how the student can achieve those expectations, and 3) is ready to help or to get out of the way of the student's attempts to learn. In such a situation the creativity, intuition and joy of the natural child are freed.

A third key concept of suggestopedia is Double-planeness. This means that teachers' and peers' suggestions to students are rarely simple and straightforward, but instead, they are complex and devious. While a teacher may vocalize one suggestion about a student's abilities, his actions of looking out the window, checking his wristwatch or smiling knowingly to the really bright student in the class may tell that student something else. The teacher using suggestopedia concerns himself with getting all the communications with the students to coincide, and he uses all planes of communication to suggest to students that their inner resources can make them successful human beings in the learning situation.

Dr. Lozanov has told us that the suggestopedic instruction must be global. By this he means that the whole personality of the student must be awakened by the instruction. The class period, the materials, the teacher and the other students cannot touch only the intellect, the aural-/oral senses, the joy or the sorrow, or the high thoughts and the petty interests of the student, but all of them. Stevick reiterates this concept also, when he explains that students remember better if they process the foreign language at a greater depth of personality and memory. Global learning is holistic learning. It means that the rational and the intuitive natures of the students are both aroused; the cognitive and the affective domains of the personality are touched.

Intonation and rhythm must be carefully noted and controlled by the teacher to arouse the students' inner resources. This means that the presentation of the material cannot be haphazard, monotone, nor poorly paced. Each element of the lesson and each part of the presentation can be most effectively presented by some special intonation or rhythm. The teacher who finds the correct means will awaken the inner capacities for learning.

Dr. Lozanov realized, when he presented these concepts of suggestopedia, that a harried teacher in the public education system is going to be hard pressed to remember all of these concepts and to apply them at precisely the correct moment. Therefore, he developed a model of instruction that incorporates these concepts, but does not seem too far-fetched; one that is applicable with a minimum amount of physical adjustment of the school setting, and insures that the inner resources of the students are tapped. But he also admits that this model of his is not the final word on the suggestopedic session. He also believes that, as a model is used, it probably loses its suggestopedic value for the learners. And since we are probably going to be devising our own models of instruction, he gives us criteria by which to judge whether or not our own modifications are indeed suggestopedic. By stating these criteria, teachers can check their own teaching models and their own students' learning against them, for it may be that many great suggestopedic teachers are already at work in our schools.

Dr. Lozanov maintains that 1) the inner resources of the students must be tapped; 2) the sessions are relaxing and joyous; 3) the students become less aggressive and more cooperative in learning situations; and 4) the sessions are therapeutic.

When I started using suggestopedia in my classes in the fall of 1976, I had read the SALT Manual and was using what I hoped was a facsimile of the model that Schuster, Gritton and Bordon had outlined therein. Their model of instruction followed the model outlined by Lozanov, except that his model was based on a two to three hour session. Since the public schools only allow an hour or a forty-five minute class period, I decided to use a three-day cycle to accomplish the goals of the three hour session. And since our school does give grades, I have used a fourth day each week for testing. A fifth day is often taken up by games, skits, singing, dancing, evaluation of the program or general discussion. I generally have music playing all four days of the cycle.

On Monday, the students receive the material for the week. In the first year class, this consists of fifteen basic sentences arranged in sets of three. These sentences contain all the vocabulary for the unit and they are written so that students can easily visualize the circumstances that give rise to the interchanges of the three sentence dialogues. The dialogues are translated on the second page of the unit. This translation does not follow the patterns of English, but rather the patterns of German. The third page in each unit consists of ten to fifteen sentences, taken from the basic dialogues, with words circled that can be replaced by other lexical or grammatical items by the students. The materials never tell the students what the substitutions are supposed to be. Instead, the students must invent correct substitutions themselves. The fourth page presents the vocabulary list. It usually consists of twenty to forty words. Three to five pages of conversations follow this list. Half of these conversations review previous chapters' concepts, sentences and vocabulary; the other half pertain to the new items of the present unit. The last page of each unit has several sentences for students to write that point out some manipulation of the language, and a list of Things-to-Do. These Things-to-Do are perhaps the most important of the elements incorporated into the materials, because they are explanations of ways that students may stand up and use the language items immediately with their classmates.

After the students get their materials and put them into their notebooks, they participate in some physical exercises. These stretching and breathing exercises help the students to release some of the physical knots of tensions that have developed during the day. During this time, I remind the students about how well they have learned in the past weeks, and about what they have been learning. I suggest that the procedures we will be using have worked in the past and will work again with the new materials.

I then ask them to sit down and close their eyes and drift along with the music for a few moments. I lead them through some visual images designed to fill their minds with bright colors and remembrances of pleasant past experiences. I also suggest that learning is easy and fulfilling and that they will learn best if their minds are free from interrupting thoughts and anxieties. I follow these suggestions with images that the material for the week should call up for the students. This session of mind-calming ends as I ask the students to keep the acquired feeling of peace and confidence while I read through the sentences for them. They are to open their eyes then and look at the English translations.

After the first reading of the sentences, they are to look at the German sentences while I read them again. During this reading, I remind them what images could be in their minds when they hear the sentences. I read through the sentences a third time and the students read/repeat the sentences after me and ask any questions about the sentences they might have. I often tell them what differences between the Americans and the Germans the sentences point out.

We then explore the vocabulary list together. They tell me how they might be able to remember some of the words and I suggest ways I have been able to remember some words or how other students have remembered them in the past.

By now, about fifteen minutes remain in Monday's class period. The students close their books and their eyes and they settle back to listen to a concert. I ask them to listen to the music and let whatever pictures come into their heads that they want. If the pictures are about the materials, that is fine, but whatever pictures they see are alright. While they listen to the music, I read the material to them; I modulate the pitch, tone and volume of my voice, so that it fits the musical background provided by the concert.

About two minutes before the end of the class period, I am finished with the material and I end the session by telling them that the words are now firmly implanted in their minds so that they can't fall out. As we work with the sentences for the next couple of days, they won't need to learn the words and sentences, but instead, they will use some old easy phrases. Since they have had this relaxing class period, they will be better able to cope with the rest of their classes. I tell them all learning can be as easy as it is in German. I advise them to breathe deeply a few times and to believe that with each breath they are taking in strength and confidence to meet the challenges of the rest of the day.

The second and third day of the cycle are spent on activities tried in any German class, except that the students already know the words and enjoy practicing their knowledge.

On the fourth day, the students review all the material for the week and then take a test. The test requires them to remember the English equivalents of all the sentences and vocabulary words, to tell what one of the conversations says, and to remember what was said during the week about Germans and Germany.

After using some modified suggestopedic session, the teacher must judge his own model by the criteria set up by Dr. Lozanov. In the area defined by each criteria, I believe, my students have made significant progress.

First, Dr. Lozanov believes that the inner resources of the student must be tapped. This means that students must find themselves learning at a faster rate than they believed possible, find they are better able to communicate with each other in their foreign language, and find they are more creative in their reactions to learning situations.

Of course, students must manifest signs of this tapping of inner resources in order for teachers to validate the claims of suggestopedia. Most of the claims for the speed-up of learning are based on tests of whether or not the students can parrot back a list of words that have been taught to them. While this may be very important in the learning of a foreign language, I think teachers are going to be much more impressed with the results of a new model of instruction, if the students can use the knowledge they have gained to do better on the normal tests of language achievement. (Of course, one must realize that those tests may be exactly what is wrong with the old models of instruction. If they are the culmination of a lot of slow, improper learning, then they will not be valid as the culmination of suggestopedic teaching and learning.)

I have used the California Common Concepts of Foreign Language Test with my students for several years, and so I felt that if students did better on this test after the suggestopedic classes, then it would be proved that they learned at a faster rate. At the end of the 1977 school year, the students performed no worse on the test than their counterparts had in past years. I was not convinced. But at the end of the 1978 school year, the second year I used the suggestopedic model, the mean score on that test jumped six points (on an eighty point test) and the standard deviation had also shrunk.

My second year students have always taken the Modern Language Association Cooperative Test in German - Form LA. Last year was the first year that the second year class had used a suggestopedic model and I did not have the materials fully developed. I was pleasantly surprised when the class did no worse than the previous years' students. They even did better in some areas. But, this year, I believe they will do much better in May and experience a significant increase in test scores again.

On the unit tests, designed for the students by the teacher, and following the principle of checking to see if the students have memorized the material, eighty to ninety percent of the students consistently get ninety to one hundred percent of the questions right. Students feel very good about their abilities when they perform that well on tests.

But test results alone will not tell whether the inner resources of the students have been tapped. Tests will not show the spontaneity and creativity with which the students interact with one another, but some of the activities that students have carried out with one another will.

After a unit on sports in second year, we had a volleyball game and used no English as we yelled cheers and friendly insults to one another. After a unit containing a rhymed story by Wilhelm Busch, these same second year students constructed a rendition of his story in rhymed iambic tetrameter. First year students made a video-tape of themselves performing scenes from the fairy tale, *Little Red Riding Hood* . First year students also exchanged ersatz travellers checks for ersatz money and bought clothing, tourist trinkets and necessities from one another. Third year students memorized, produced and performed an operetta of Rumpelstilzchen in ten class periods. These same students used water colors (for the first time since third grade) and produced commendable pictures based on the story of *Der Fischer und seine Frau.* Second year students produce newspapers, write letters home to Mother and write invitations to one another. The list of activities goes on and on. These activities are done during class time. Students don't complain about their lack of ability. They help one another produce their diverse finished products. I feel that their spontaneity has been awakened again and that their creativity has been tapped.

Dr. Lozanov's criteria for suggestopedic sessions also demand that the sessions be relaxing and joyous. There is no way that I have to test this, but I know that I have had classes that appeared to be bubbling, or even flashing, with excitement. But I knew that this frenetic activity was anything but relaxing, and that rather than being a manifestation of joy, it was probably masking anxieties that the students harbored about abilities. Now my students enter learning situations, confident that they will be able to learn what they will be expected to know, and that the situation will expand their personalities. That confidence is the basis, I believe, for joy.

Students find it difficult to not be aggressive in the situations of high school learning, unless they have been the targets of aggression for so long that they have decided to be apathetic. And teachers, too, expect their students to compete with one another, so that winners will win good grades and losers won't learn. What a change it is for the students to be in a class where they are asked to support their comrades, give everyone a chance to learn and to show what has been learned. It is often several weeks into the course before students really decide to share instead of hoarding their knowledge; they share of themselves instead of protecting themselves against the encroachment of others' personalities; before they convince themselves that school is cool instead of a place to vent hostilities. f protect themselves against the encroachment of others' personalities; before they convince themselves that school is cool, instead of a place to vent hostilities. But these things have happened in the suggestopedic classes.

Dr. Lozanov's criteria have been met. But one factor he did not mention, which ought to be used in judging the sessions, is that the teacher becomes a teacher again. It has been thrilling to prepare for each day, knowing the students are going to want to learn what the teacher has to offer and that they will, given time, eagerly accomplish any task.

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La Suggestopédie dans un lycée américain
Dans ce mémoire présenté au congrès de l'ACTFUL en 1979, l'auteur explique de manière très détaillée l'utilisation de la Suggestopédie dans un cours d'allemand au niveau secondaire. L'auteur trace aussi les grandes lignes des principes de base de la méthode.

Suggestopädie in einer amerikanischen höheren Schule
Der Gebrauch von Suggestopädie in einer Deutschklasse an einer höheren Schule wird in diesem Vortrag, der bei der 1979 SALT Tagung gehalten wurde, ausführlich erklärt. Der Verfasser skizziert auch einige der Grundbegriffe von Suggestopädie.

Sugestopedia en una colocación de una escuela superior estadounidense. - Este reporte del autor a la conferencia ACTFL 1979 explica en gran detalle el uso de Sugestopedia en una clase de aleman en una escuela superior. El autor también delinea unos conceptos básicos de Sugestopedia.

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Optimizing the Presentation of Classroom Information

Giselher Guttman
Boltzmann Institute for Learning Research, Vienna

Abstract

In this 1979 SALT conference speech, the author reviewed the research work at the Institute in optimizing how information is presented for best learning. The original work was done with subjects learning one at a time in the lab with electroencephalogram (EEG) brain wave and brain DC voltage studies of cortical arousal or activation. While an optimum schedule of alternating and repeating both activating and didactic information was found in the lab, the associated electronic equipment was not suitable for large scale use in public school classrooms. Accordingly, research proceeded successfully to substitute imagery, gymnastic exercises and music to control activation level of students in the classroom appropriately. Four repetitions of this cycle have been found best in classroom learning: 3-5 minutes of decreasing activation followed by 5-7 minutes of teaching (didactic) information.

On the very moment when information is perceived and the person ready to handle information is my area of research. I have been busy in the study of learning for many years and we have seen that it seems to be important in looking at this information presentation phase to see what is going on just before presenting the information, and on the other side looking for the next step after having presented the information.

The information unit, to be presented and learned in an optimum manner, has to be prefaced by an information unit a few minutes before the new material, with a consolidation unit coming just afterwards. The important thing is shifting information from short term memory to the long term memory. This consolidation phase takes a lot of time, as sophisticated experimentation has shown an effect up to 4-5 days after learning. The main research we were interested in was what psychology calls "activation level". Every person is, more or less, awake all of his life. His level of consciousness, readiness to respond, shifts from being awake to falling asleep. This activation level, or arousal level, shows slight mutations; we are sometimes a little more active and awake, and sometimes a little less activated. Research in these slight activation level changes can only be done if you have a very good indicator for activation level. You know there are always things like muscle tension or psychogalvanic skin resistance changes. We have tried electroencephalogram brain wave analysis where the conventional method shows changes in activation level during a normal everyday life situation in changes of frequency or amplitude of brain waves. Now consider a person listening to an interesting paper, seeing a short total blackout slide, and getting awake again. The higher that activation level, the faster and smaller the brain waves drop in frequency or amplitude. What we first tried ten years ago, and it yet works very well, is to use a special purpose computer with fast analysis which enables us to see not only big changes of activation level, but also very slight changes of activation. These studies have shown us surprising results, and maybe that's one of our models which differs a little bit from the conventional suggestopedic method. To say it in one sentence: For most problems of information processing, it is best to have the person beforehand in a relaxed state and change to a higher activation level during the few moments that you present information.

May I give you an example? For illustration, we used a learning experiment with two pairs of subjects and registered the brain waves on line during all the experiment. In such a situation, of course, each person would show slight changes of activation level, sometimes the activation level goes a little higher and then drops again. Our machine triggered the stimulus and the syllable to be learned when the arousal level dropped a little bit. So we can have a teaching machine which is controlled by the brain waves of the person learning our material.

What I would like to show you now is frequency of the brain wave, and their average amplitude over the period just before presenting the first stimulus vs. the second slide; you can see differences are very slight. One person is not just going to sleep while the other is awake. They are both highly activated, but one is a little bit more activated than the other. Now the stimulus comes and they both have to learn the word. You see that at the moment of presenting the stimulus, both are activated at the same level; the stimulus wakes the less activated person, but one second later they differ again. To tell it once again, it's only a very small and microscopic difference of activation level between the two people. The subject presented with the nonsense syllables during the less activated state is much worse in learning than the other subject, by more than four times, for the material presented. During presentation of information and learning new material, it is obviously necessary to activate a person to get him out of his less activated state.

Now a much better way of studying such microscopic changes of activation level has been shown to be cortical evoked potentials, the sensory process correlated with a certain specific psychic process. For instance, if you have a person in a dark room without any stimulus and without any noise and you make a short click, it is possible to analyze the resulting brain waves and correlate them with perceiving the click. Thus, we can now check, for instance, hearing ability without verbal communication. It's not necessary to give quiet tones to a person and ask if the person can hear the tone or not. Now we can test a person's hearing without verbal communication. We just look at the brain waves evoked by the click stimulus, and see if a response exists physically. If the person cannot hear the stimulus, no potential is evoked. When the stimulus reaches the limit, a person says, "Yes, I am just hearing it," and a small evoked potential develops in the brain. The amplitude of the evoked potential is highly correlated with the perceived intensity of the stimulus.

We have tried this method also in other fields of perception, for instance, optical evoked potentials. With different letters which become smaller and smaller, at the very moment the person is not able to read, you see the change in the evoked potential.

The sensory evoked potential, as far as we have seen, is really a correlate of subjective experience, and not the stimulus in the brain; it's how we perceive the stimulus, it's what conscious experience tells us. Changes of sensory evoked potential occur when activation level is shifting, and it's obviously one of the best indicators of changing activation level. For instance, if the same stimulus will be given repeatedly every time, like a clock going tic-toc, the person soon cannot hear the tone. Inhibition sets in and the big potential orignally evoked will get smaller and smaller. maller. If we set one stimulus out of the time order, a little bit earlier or later than expected, the potential is evoked full strength again. The slightest changes of activation level which influence our perception can be seen in the sensory evoked potential. A very strong connection exists between activation level and performance in every field, whether it be a simple motor task or problem solving on a very high cognitive level. Low activation level means low performance; higher activation level means better and better performance, but then the inverted U-shaped function comes into play. Performance drops again from too much activation; this means worse performance. The problem is to find, for a certain task, the optimal range of activation level. Before presentation of information to be learned, we should bring the person to this part of the activation curve.

Well, how can this be done? For some years now, we have not used the frequency of the brain waves, but we use the next step which is activation itself, the DC level of some certain cortical regions. It's hard to get such recordings because you need special electrodes. It takes some time before you can be sure what you see is really a cortically perceived potential and not an artifact from the amplifier. We learned the technique, and now it is possible to obtain a very good indication of the low level DC potentials of any brain area you wish to observe. If you want biofeedback, this DC level is the fastest way to give a person information of how activated he is at some moment and also to give him an indication to change activation level in one or the opposite direction.

Most of the work done by us has been in the field of psychology of sports. We have a lot of problems with lots of mountains, skiing and ski jumping, and there are some specific problems of activating our sportsmen. There it is possible to give a person a tool for changing these activation levels in a very short training period, using these very sophisticated methods. For instance, we use a tone which is correlated with the perceived potential, and as the potential activation gets higher, the higher the tone becomes. We just tell our subjects, "Try to keep the tone deep or high." After twelve repetitions, you see learning starts, and after thirty repetitions, the perceived potential has shifted 100 microvolts. The next time, we change the instruction to make the tone deeper again. You must consider that the poor person does not know what to do, but can do it anyway after some few seconds; the cortical potential has changed again about 80 or 90 microvolts.

This is not a cognitive process. It could be the person starts to have some exciting imagery or something else. Is it a conscious act, is it an attitude, or is it some real brain mechanism? In our animal experimentation, our subjects have these electrodes for five and six months, implanted without irritating the nervous tissue. As with humans, it's a basic physiological process; DC potentials can be conditioned by instrumental conditioning and you have a very direct way to influence the activation level experimentally.

We did some DC biofeedback with a few persons in the classroom, but that's not the way to do classroom work. So we looked for a different method. Well, you must not laugh--Lozanov has done a lot of work in the classroom, but it takes too much time and too much equipment. So we were looking for a method which gave nearly the same result and is practical in the classroom. The best way to manage it is to get the right change of muscular tension and relaxation. We developed a model of classroom instruction. The children first became activated, as desired, with a proven method of muscular tension. The most important point is the change between tension production for three or four minutes, to the deactivating phase in the preparatory period. For deactivating, we now use music. The children are trained to imagine a situation, and after a few seconds, music starts. After one or two minutes, we have the level of deactivation we need and, at this moment, the learning information unit begins. Another type of music starts for what may be mathematics or spelling. The child knows that it is coming on and, in a few seconds, is in a higher level of activation. The children are, for a few moments, on the same common level of attention and activation. Then, the second unit starts and imagery is used. We have learned that it is very important to start, stop, and break, and then repeat.

Our work in the classroom tells us that consolidation of new information takes hours and even days. Transfer to long term memory changes the structure of brain tissue in the cortical region; the total tissue shows a thickening of about 1/10th. Increasing brain weight by about 10% means our brain is not a stable switchboard; our brain is more similar to a muscle which can grow after training. These growing processes, as we know from biology, need a lot of time. It's very important in the first phase of consolidation to have no other operating influence. The best thing would be to sleep. That's impossible in the classroom, so we use some information very dissimilar to the first information. Let's say after mathematics we make some music, or have some reading. The important thing is to find the right schedule for timing.

We all know very well the work of Ebbinghaus, who showed the curve of forgetting which differs, of course, depending on the material one learns. If new material is presented, let's say after a half-hour, 50% is forgotten and, after one hour, you only remember 25%.

What can be done against this forgetting? Well, the only thing is repetition and you should select the scheduled points in such a way that you will return this curve of forgetting back to the original level of

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learning. Thus, after five to ten minutes, we start the first repetition and again reach the 100% level. Of course, some of the information again will vanish, but the function will show a lesser decrease and the next information will bring learning back again to the 100% level. The time schedule, of course, will depend upon what you are training, how long the frame was, how much information was given in it, and so on. The model can be used in any field or work; you will have only to see how much time has to be spent for the new information unit and what is the optimal timing for breaks and repetitions. For our classroom work, we have worked out one standard unit which can be used for any information we present in elementary school. The best timing for breaks and repetition was a schedule of four repetitions.

Instead of looking only at the informational unit, we start with the preparation unit to find the optimal level of activation. Assume that the optimal level is found, then the informational unit starts like programmed teaching, a few minutes for one frame of information, then the consolidation phase, a short break, repetition, another break, second repetition, another very long break, third repetition, another very long break (maybe the next day in some cases), and finally the last repetition. This seems to produce the best learning effects. The model can be used in almost any field we have tried. It makes no difference at all for the model if you use it in the elementary school, in management training, or in a school for getting a driver's license. You must find just the right information unit, not too small, not too big, and you must find the right timing for your breaks and repetitions.

Now maybe you will tell me I am at the wrong conference, that what I am talking about is not suggestopedia. I might agree, but on the other hand, we have found many similar results in suggestopedia. I started from a very different point of view as a biologist; I am interested in brain waves and brain wave shifts. Most of our results are like yours. Some things may differ a little bit, but that's not a pity. Lozanov has such a lot of wonderful ideas that it's a living system. Everything alive should change and develop. Therefore, I am very glad that you invited me to speak at this wonderful conference, and that I have had the opportunity to present and discuss our results with pleasure. Thank you very much for listening.

Questions

Q: What's this talk about a DC level? What do these letters stand for?
G: Oh, I'm sorry about all this Chinese research. DC means direct current, the opposite of alternating current. If we look at the brain of a person being more or less activated, there are changes of the cortical average DC potential. When the attention shifts toward a stimulus, where you instruct your person, "Now look, something will go on," you can see the change in DC potential on the brain. Changes in DC potential are highly correlated with the conventional EEG brain wave changes;

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being less activated means big, slow waves and becoming more activated means coming up with small and high frequencies. So far, we think the cortical DC level is a very good indicator for activation in a certain cortical region and we find this good also for slight changes in activation levels.

Q: Have you been using these techniques of repetitions and timing in adult language learning classes?
G: It started in management training, but the real work I am speaking about has been done in elementary school with children from 6-10 years old.

Q: The preparation of the activation information could be done without DC brain monitoring?
G: Well, as far as I have seen, it cannot be done without any help of some kind. In the psychology of sports, if you ask a person, "What is your activation--how do you feel?". one will answer, "I'm highly activated, I feel anxious and nervous." If you look at some physiological indicators, maybe you will find he's very right. It's the optimal range that's important. Another one will say, "Oh, I would like to become more activated." You will see that maybe he is this way. That means we have obviously no sense, as human beings, for how activated we are. The first thing we need is information on what's going on and that's the first thing the person needs to know. These classroom gymnastics do not produce information, but they produce a standard level of activation; most pupils are on the same level. Perhaps a better way of changing the activation level is biofeedback. Then you will have individuals' shaping their activation level, but for probably five or ten it didn't work at all. It makes a lot of trouble for the teacher and students, and more classroom changes than in a laboratory. That's what we do not like. This sort of gymnastic exercise produces something like a standard activation level and you know very well what this level is.

Q: I was wondering if you have a list of procedures that you follow in class?
G: Well, I have such a list and we can send it to you. I did not tell you anything about these exercises and gymnastics worked up by the teachers. It takes about two to four minutes with a well-balanced design, which produces the very level of activation we need.

Q: I think I missed your definition of activation; does that mean stimulation of the brain or physical activity?
G: Well, I just took the term as Duffy used it in psychology. Nobody tells us whether he means the cognitive level, the behavior level, or the physi-

ological level, but I think that is very good because activation in this sense is exactly everything! If you look at activation on the cognitive level, you will probably be awake, showing high concentration, focusing attention toward some certain thing, and on the behavioral level, high muscle tension, and on the physiological level, you will see that almost every function which is able to change will change. The temperature of the body, the biographic activity, the activity of the smooth muscles, the stomach, blood pressure, heart rate and brain waves and, last of all, DC level. So, I think activation in this broad sense is just being more or less awake, ready to react, ready to respond to this big dangerous stimulus reaching us and arousing all our energy.

Q: Can it be cognitive or physical?
G: Yes, and I think there are different points of view on this, but it's about the same thing; arousal level, level of activation.

Q: It would seem hard to measure that, because you can be very active cognitively and very inactive behaviorally at the same time.
G: No, that is not what I have seen. We find a wonderful correlation between all of these levels, but you can have a more or less generalized activation and that's the problem. We see this also in the DC level. There are certain combinations which show that one hemisphere will become completely dominant, that means generalized activation. In other conditions, a very small part of the brain will become activated. Therefore, it is possible we will find these activation changes on the cognitive level attached to a stimulus on the psychological level, as well as finding the DC potential in the region prepared for the stimulus.

Q: How does music affect activation level?
G: Well, I think these things maybe are dependent upon your experience. Not everything could be transformed from Bulgaria to Austria. We have no research with this rhythmic stimulation or stimulation by their own heart beat. We did not find any differences between certain patterns of music. I would like to say music is in our model only as a stimulus to produce less activation or more activation, or as a differential stimulus starting the next information unit. I think it is dangerous to expect more than these basic inferences, and we use music only as one of many tools for exerting influence on the activation level of our subjects. We have tried lots of music pieces and found out the pieces which are good for activating and deactivating. I think this work has to be done in every country with different music. I also think this work has to be done every couple of years because things are changing.

Q: Do you have specific lengths of time that you take the children on a guided visualization? Are there any specific types?

G: Imagery showed up as a very good technique. Our information unit must not be longer than five to seven minutes.

Q: Oh, the information unit must be five to seven minutes?
G: Yes.

Q: Even the longest information unit?
G: Yes, even the longest information unit.

Q: Do you use guided imagery in the information unit?
G: We use guided imagery also in the information unit of a different type.

Q: Is it somehow connected with the information?
G: Very much so.

Q: Did you view the guided imagery as a first exposure to new information or as a repetition to it?
G: Mainly for the first exposure, but also for the first and second repetition, but most important to us, as you say, in presenting new information.

La meilleure façon de présenter l'information dans une salle de classe
Dans ce mémoire présenté au congrès de SALT en 1979, l'auteur a passé en revue les recherches de l'Institut sur la présentation d'information pour le meilleur apprentissage. Le premier travail a été réalisé avec des individus dans un laboratoire sous enregistrement électroencephalographique des ondes cérébrales et des études DC de l'activité corticale ou de l'activation. Alors que l'on a découvert en laboratoire un rhythme pour l'alternance et la répétition de l'information active et didactique, l'équipement électronique s'est révélé impossible à utiliser dans les salles de classes publiques. Ensuite, on a poursuivi convenablement et avec succès les recherches sur la substitution des images, les exercices de gymnastique et la musique, afin de contrôler le niveau d'activation des élèves. Il a été préférable de répéter ce cycle quatre fois: 3 à 5 minutes d'activation diminuée suivi de 5 à 7 minutes d'enseignement didactique.

Optimale Gestaltung von Information im Klassenzimmer
In diesem Vortrag für die 1979 SALT Tagung gibt der Verfasser einen Überblick über die Forschung am Institut in Bezug darauf, wie die Darlegung von Information für das beste Lernen optimal gestaltet werden kann. Die ursprüngliche Forschung wurde mit Versuchspersonen ausgeführt, die zu einem im Labor mit Hirnwellenbild (EEG) und Hirngleichstromvoltauntersuchung der rindigen Erweckung oder Aktivation lernten. Obwohl ein optimaler Plan des Wechsels und der Wiederholung von aktivierender und didaktischer Information im Labor gefunden wurde, war die damit verbundene Apparatur zu einem weit verbreiteten Gebrauch im Klassenzimmer nicht geeignet. Demgemäß hat man in der Forschung

mit Erfolg bildliche Darstellung, Gymnastik, und Musik ersetzt, um die Aktivationsstufe der Studenten richtig zu kontrollieren. Eine viermalige Wiederholung dieses Zyklus hat sich für das Lernen im Klassenzimmer als das Beste erwiesen: nach 3-5 Minuten der abnehmenden Aktivation 5-7 Minuten der didaktischer Information.

El optimizar de la presentación de información en la aula. - En este dicho de la 1979 SALT Conferencia el autor revió la investigación al instituto en el optimizar como la información se presente para el aprender mejor. La obra original se hizo con sujetos apriendo solos en el lab con estudios de ondas del seso (EEG) y DC voltajes del seso sobre el excito cortical e activación. Mientras que una cédula óptima del alternar y repetir información didáctica y del activar se descubrió en el lab, el equipo electrónico no fue proprio por el uso en gran escala en la aula pública. Por eso la investigación procedió con éxito substituir la imaginería, ejercicios gimnásticos y música para gobernar el nivel de activación de estudiantes en la aula propriamente. Cuatro repeticiones de este ciclo se han hallado el mejor en el aprender en la aula - 3-5 minutos de activación que se disminue con unos 5-7 minutos siguientes de información didáctica.

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Supplementary Report on the Austrian Experiment with Suggestopedia in Elementary Schools

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Abstract

Progress in using suggestopedia experimentally in elementary school instruction in Austria is presented. Work from 1974-1979 is summarized, showing some academic acceleration. Associated problems are discussed along with plans for future expansion by the author in this, his 1979 SALT conference paper.

In the Spring, 1978, issue of the SALT *Journal* appeared the first information on an experiment with suggestopedia in elementary school instruction in Austria. This experiment began in 1973 at the Ludwig Boltzmann Institute fur Lernforschung (Ludwig Boltzmann Institute for Learning Research) under the direction of Dr. Franz Beer, with the close co-operation of Dr. Georgi Lozanov. Dr. Beer also gave this well-received presentation on the experiment at the 1979 SALT convention.

The experiment is continuing, and, in order to inform our readership fully, we present the following information condensed from a report by Dr. Beer and received in 1979. Overlap has been avoided, and the reader is referred to the article already printed for background informatio (Beer, 1978).

Additional Information on the Experiment

A summary of the experimental classes that have been conducted shows: 1974-75 - one first grade class in Vienna; 1975-76 - one second grade class in Vienna; 1976-77 - one third grade class in Vienna; 1978-79 - two first grade classes, a second grade, and a fourth grade class in Vienna and two first grade classes in schools in Linz, Austria.

While an accelerated reading performance was initially reported, Dr. Beer stresses the fact that this was not just an act of mechanical reading, but rather that the majority of the children were reading with genuine understanding. However, at the end of the first year, children in the control class taught with conventional methods had attained this reading level as well.

In spite of a weekly reduction of two hours in mathematics instruction in the fourth grade, there was, during the four years of the experiment, a cognitive and performance acceleration of one year. Thus, the material to be taught in five years could be completed in four. The two hours gained by the reduction in the time scheduled for mathematics were used in the first semester for work in music, and in the second semester the time for instruction in English was increased from one to three hours.

There was no increased performance in oral or written language; however, no special suggestopedic program was introduced for this area.

There were difficulties in developing and acquiring the materials for instruction. For the second to fourth grades, there were no materials available in German although, according to Dr. Lozanov, such material was available in Bulgarian. There was, however, no means available for translation. Upon the urgent request of Professor [illegible], a participating teacher, a Bulgarian mathematics book for the second grade was obtained in May of 1978. Dr. Beer notes that it has not yet been possible to develop, in co-operation with Dr. Lozanov, a curriculum employing suggestopedia for all subjects at the elementary school level.

Opinions of Evaluators

The principal of the elementary school where the suggestopedic instruction in Vienna was conducted, Karl A. Dostal, reported upon the experiment in a letter of May 31, 1978, addressed to the Austrian Office of Education and Art. He notes the increased attainment in mathematics, but raises the question of whether this is to be attributed to the methodology or the fact that more material was presented. He also notes that there was no difference at the end of the fourth grade in language arts (German) skills, although the experimental group did register a modest increase in knowledge of grammar and the understanding of texts. His remarks were based upon personal observation. Doubt about the general application of the experiment is expressed because it is greatly dependent upon the personality of the teacher and is very costly.

Professor Inge Lustig, having worked with the experiment for two years, commented that there were difficulties with the limited direction given by Dr. Lozanov. She is also critical of a lack of scientific comparisons and controls. After restating the outcomes of the experiment, Professor Lustig indicates that the amount of material learned nonetheless supports the effectiveness of the method. One must consider the amount of material to be presented along with the very important question of using the time gained. Her recommendation is that it be used for foreign language instruction. Whether the experiment is generally applicable, she does not know, but she strongly recommends reconsideration of the mathematical curriculum design based upon objective scientific observations rather than pedagogical assumptions. Moreover, she strongly urges that the basic principles of suggestopedia be included in teacher training and in-service training. These principles may give the teacher a new self-understanding which would be important for the psychological health of the teacher and the instruction as well. For these reasons, Professor Lustig believes the experiment was worthwhile.

Dr. Ingeborg Messerer adds in her evaluation that there was no noticeable decrease in performance when a five-day school week was introduced. All children who began the experimental first grade class completed the school year. (In Austria, children not considered ready for first grade are released for the school year, and this is generally about eight percent of the children.)

Future Plans

Since 1975, support has been requested on the part of Austria for the following proposals: 1) language courses in the elementary and secondary schools and 2) language courses for those majoring in English and seeking certification for high school teaching. In spite of urging from the Austrian side, the language instruction for elementary and high school students has been postponed and was not able to be conducted in the school year 1978-79. There is no Bulgarian plan for the language courses at the post-secondary level. The foreknowledge is too great in this instance.

Language Courses for Adults

Professor Lozanov has conducted language courses on a private basis for the Central Savings Bank and members of the Vienna State Opera. For the members of the First Austrian Savings Bank and the Central Savings Bank of Vienna, two four-week courses and one fourteen-day complete Italian course were held. The first portion completely fulfilled the expectations of the participants and the organizers. However, because the first part had been postponed from February, 1977, to May, 1977, the second portion did not take place until fall, 1977. At that time, a number of the participants were still on vacation. In addition, there was a conflict between one participant and Dr. Lozanov. Explanations about the method, requested by the participants, were given only reluctantly. Due to professional obligations and decreased motivation, only three persons participated in a third portion.

Modified Experimental Plan

The continuing experiment will concentrate upon establishing an empirical base for a more psychotherapeutic view. The goal is to optimize, in the teaching and learning process, the most recent developments in perception, learning, motivation, and social psychology. The goal can only be attained through the application of the basic principles by well-trained teachers and with continuing scientific control of the experiment. The guidelines may be divided and summarized as follows:

1. Consideration of all known biological laws of formal learning, such as thinking and learning blocks, and the relationship between activation and performance.

2. early recognition and consideration of individual learning styles,

3. optimal presentation of all content material,

4. optimalization of mnemonic strategies, and

5. self-activation of the children through inclusion of such aspects as parental involvement and control of social interaction.

(Editor's note: We look forward to continued information on this extensive experimental effort.)

References

Beer, F. Suggestopedia in elementary school. *Journal of SALT*, 1978, *3* (1), 21-37.

Un compte rendu supplémentaire sur l'expérience autrichienne de Suggestopédie dans les écoles élémentaires
Dans ce mémoire présenté au congrès de SALT en 1979, l'auteur montre le progrès accompli en utilisant la Suggestopédie de façon expérimentale dans les écoles élémentaires en Autriche. Il présente un résumé du travail accompli de 1974 à 1979 qui fait preuve de l'amélioration de la situation scolaire. Il aborde des problèmes connexes et ses projets de développement futur.

Ergänzung über das Österreichische Experiment mit Suggestopädie an den Grundschulen
Der Fortgang mit dem experimentellen Gebrauch von Suggestopädie in dem Grundschulenunterricht in Österreich wird dargelegt. Die Arbeit von 1974 bis 1979 wird zusammengefaßt, und etwas akademische Beschleunigung zeigt sich. Die damit verbundenen Probleme samt Plänen für eine zukünftige Erweiterung werden in diesem Vortrag, der bei der 1979 SALT Tagung gehalten wurde, von dem Verfasser diskutiert.

Reportaje suplementario de la investigación de Austria con Sugestopedia en la escuela primera. - El progreso en el uso de Sugestopedia experimentalmente en la instrucción en la escuela primera en Austria se presente. La obra de 1974-1979 se resume con alguna acceleración académica. Problemas asociados se discuten por el autor con los planos para la expansión futura en esto, su papel de la Conferencia de SALT en 1979.

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Teaching Reading with Stories vs. Cognitive Hierarchy

Renee Fuller, Ph.D.

Abstract

Suggestopedia emphasizes the use of interesting stories as vehicles for teaching classroom material such as reading or arithmetic. Independent support for this notion cames from the work of the author in teaching reading via stories in the Ball-Stick-Bird method.

A few years ago at this meeting as part of a symposium on the Ball-Stick-Bird reading method, several of us presented data on the unexpected success of the method in teaching severely retarded students to read with comprehension. Unexpected as these results were, what was even more surprising was that they were achieved with a system intended for the superior - not the retarded. Although Ball-Stick-Bird simplifies the mechanics of reading in a number of different ways; for example, by showing how each letter of the alphabet can be made with three basic forms - a circle (ball), a line (stick), and an angle (bird), it emphasizes the abstract process of comprehension. Word building begins with the presentation of the second letter, and the stories start after the fourth letter. To deal with the vagaries of English spelling, the student is taught "code approximation". He is told that the letters of the alphabet represent a sloppy code. The only way he can be sure of the exact sound of a particular letter is to see if it makes a word that is sensible in the sentence or the paragraph. "Code approximation", in 20th century jargon, requires intellectual feedback (Fuller, 1975, 1974).

The method had been designed for superior children who, however, have poor auditory and visual memories, along with a superior capacity for abstraction. The method was therefore considered beyond the intellectual capacity of the retarded. Only by chance was it tried on a retarded population.

It all began when we tested the alphabet innovation on a group of severely retarded subjects who had been exposed to a multitude of reading systems but who, in spite of every type of intervention, had not learned even the alphabet. Not unexpectedly, we found that teaching the alphabet by showing how it can be composed with the three basic forms did indeed produce more learning than usual procedures. This is where I expected the experiments to end.

But the psychologists who had done the alphabet experiments, being young and inexperienced, wanted to try the complete method, including "code approximation", on a severely retarded population. For a whole year, they lobbied before I agreed - restricting their experimentation to three patients. Much to my surprise, but not to that of the inexperienced psychologists, the three retarded subjects, and the many subsequent ones, learned to read with comprehension and changed cognitively. The success of subjects with Stanford-Binet IQs as low as 20 has been repeated again and again. These data raise profound questions, not only about the validity of IQ tests, but of the intellectual hierarchy implied by their sub-tests. The results of the original experiment have been reported in detail elsewhere (Fuller, 1977, 1975).

Early in the experimentation, it became apparent that "code approximation", rather than being excessively difficult for severely retarded subjects, was the main reason for their success. The contextual material, the stories, functioned to anchor the "bits" of information, and seemed to help in their intellectual cohesion. The stories had not only motivational value, in that they were high-interest material, but they made it easier for the subjects to understand what they had to learn and why. Reading came to resemble a game for which they were being given the rules in the process of playing. This allowed considerable implicit, rather than explicit, learning.

The subjects, however, were very explicit in their understanding of the stories. They told us, in detail, what they had read. Testing further demonstrated the importance of in-context material. Tests in which words were embedded in a sentence had significantly higher scores than tests where the same words were presented in word lists. This was especially pronounced for the very low IQ subjects. Once a retarded subject had learned to read stories with comprehension, he was also able to follow written directions. Given those results, it is curious to note that the importance of in-context material is all but ignored by the IQ tests. There are some interesting historical reasons for this oversight.

When IQ tests were first developed at the beginning of the century, their intent was to predict school success. To do this, Binet and Simon (1905) took task segments which were descriptive of the skills needed for school success. Because the techniques of turn-of-the-century education emphasized rote and segmental learning, the IQ sub-tests sampled this type of skill. Now more than half a century later, the tests continue to do so with relatively little change (Terman, Merrill, 1960; Wechsler, 1944). The most usual test items are disconnected segments such as digit span, memory for sentences, vocabulary definitions, isolated information, etc. Characteristic of these tasks is that they are out-of-context. The child, in order to perform them successfully, is not asked how things relate to one another, to make a story out of them. Some psychologists, for example, Kagan (1963) have discussed the implication of these skills for individual cognitive style.

Although IQ tests have been credited with successfully predicting school performance, this success or failure has not always correlated with later academic performance. There are outstanding exceptions such as Darwin, Einstein, Alexander, Patton, Churchill, and a host of others who performed poorly in school, but whose intellectual achievements later in life were outstanding. Perhaps the reason these geniuses had difficulties in school was because they were called on to perform segmental tasks that are out-of-context; tasks that are similar to the items on IQ tests. Although these geniuses differ one from the other, they have in common an ability to make sense out of the world, to make a story out of what is going on. Einstein's laws of physics and relativity tried to tell us the story of the universe. Churchill made the history of the Second World War his story.

When IQ tests were first developed, they sampled current educational techniques. Since turn-of-the-century education rarely used in-context material, the tests tapped the segmentalized skills and knowledge needed for school success. With Spearman's (1927) claim that the tests measure "g", or general intelligence, the test items, by implication, became descriptive of the construct "intelligence". The growing importance of IQ tests in mass education has popularized "IQ" and reified it, (Anastasi, 1935; Tryon, 1979). The tests have thereby perpetuated turn-of-the-century teaching techniques. Schools frequently try to teach the skills that students need to do well on IQ tests. This means they teach the segmental skills and knowledge that appear on the tests. They do not use the story method which taught our severely retarded subjects to read and which might even have made Darwin and Einstein into school successes. By continuing segmental teaching, modern education has frequently made the IQ scores self-fulfilling prophecies. Because the same skills are required in school as on the tests, the two correlate highly with one another. However, as our results have demonstrated, when you change educational techniques, the correlation between test and school performance can break down.

Although ignored by IQ tests, story comprehension appears surprisingly early in child development. By the time a child is two, he begins to follow a story. Is his budding capacity to understand a story the development of intellectual cohesion? Is this new imposition of structure on his environment the reason why he has a sudden spurt in vocabulary? Before story comprehension takes place in a child, his vocabulary consists of four or five isolated words. Then, almost overnight, his vocabulary explodes and he starts to make sentences, even if they are only two-word sentences. He now tries to communicate with words, to impose a structure on reality. The structure he tries to impose takes the story form.

Even among the retarded, there rarely is someone who cannot follow a story. There were two such students in our study. They were our two failures. Ned and Gordy were not able to follow a story, they remembered little about their own lives. Although they did not have the lowest IQs, verbal communication in the sense of telling us what had happened was all but impossible for them. And yet, Ned performed surprisingly well on the Stanford-Binet. His IQ of 63, one of the highest in the study, was achieved because he had been able to master some segmental facts and skills. But he was not able to function with these facts and skills. There is, of course, another type of patient, the schizophrenic, who frequently has the same inability to follow a story. And like Ned and Gordy, their IQ scores are also not descriptive of their level of functioning.

Although Ned and Gordy were not schizophrenic, their interaction with people and environment was on a much lower level than patients with lower IQs. The two had something else in common. Both had almost continual petit mal seizures. Perhaps the repeated electrical discharges prevented the neurological traces from being set down which would have made it possible for them to impose the story form on reality.

Advertisers have long known the effectiveness of the story, even for toddlers. But rarely have psychologists or educators shown such awareness. Had I had such awareness, I would not have been surprised when "code approximation" was effective at lower levels of development. Serendipity showed that story comprehension, which most of us would label at least for the "normal", was indeed a basic form of cognition.

The cognitive hierarchy assumed by education, IQ tests, and the construct intelligence, has its roots in the history of our science. The Cartesian conceptualization of learning, later modernized by the Mills, and more recently by S-R psychology (Boring, 1952), sees intellectual functioning as built by pieces of segmental learning which, in themselves, are without meaning, and have no cohesion. In spite of the work of David Katz (1948) and later Jean Piaget (1970), and now by many in this country, some of whom are on this panel (Elkind, 1971, 1969; Hilliard, 1975; Hunt, 1961), IQ tests and education operate as though cognition requires that small segments, "bits" of information, must first be learned before their totality can be understood. Laboriously mastered segments are expected gradually to make a whole which may be reading a story, or anything else. A corollary to this is the assumption that "bits" of out-of-context material are easier to learn, are earlier in child development, than the later capacity to see things and to comprehend them in context.

One of our first subjects, Hal, demonstrated the importance of context to cognition. Hal's diagnosis was central cortical blindness which manifested itself in graphic aphasia. In other words, he had difficulty perceiving the "bits" of information required for reading. When you showed him two letters side by side and asked him if they were the same or different, he frequently was not able to answer correctly. As a result, his memory for letters was abysmal.

We took Hal on in our original study to see if his capacity to follow a story would bridge the cognitive gap involved in his inability to recognize the letters. Much to our surprise and delight, Hal did learn to read with comprehension. But even after he was reading fluently, when we showed him the letters of the alphabet separately, he frequently was not able to name them correctly.

Hal's case shows that the original conclusion of Gelb and Goldstein (1920) for traumatic cortical injury should not have been so restrictive. Their patients also were able to recognize the whole even though unable to recognize the parts. But the presumption was that this capacity to perceive the whole involved retention, not learning.

Hal's success is fascinating because, in his case, the injury occurred at birth rather than later in life. He demonstrates that there are occasions when it is possible for a person to learn a totality even though he has great difficulties in recognizing the parts (the "bits") that make up the totality. The human brain evidently is more remarkable as an adaptive and learning instrument than we had assumed.

For decades, Carl Lashley (1963) searched for the most basic unit of memory and learning, the engram. But he never found it. Was he looking for something too small? Have the IQ tests and education frequently done the same thing - tested for or taught a segment that was too small? Rather than "bits" of information being our intellectual engram, is perhaps the story the engram of our species? Is that the reason why our subjects were successful even when they had such low IQs? Is it because we inadvertently used techniques that involve the engram for our species? If so, it would explain why the IQ tests so flagrantly failed in predicting and describing the success of our retarded subjects.

Story cohesion, as the fundamental unit of cognition, could explain some disparate phenomena. For example, people tend to make a story out of their emotional states. When tired or irritated, we find a reason (a story) to justify the feelings. Under physiological conditions that produce anxiety, fear or rage, we seem to be able to find the appropriate cause - the appropriate story - to match the emotional state. We make sense out of our emotions, we create rationality for our physiological states, by placing them in the context of a story.

The need to make our life coherent, to make a story out of it, is probably so basic that we are unaware of its importance. Science has found it relatively easy to analyze the distant star or the distant molecule, but the understanding of ourselves is more elusive. To do so, we have to use ourselves as the analytical instrument. This, as Kant pointed out over a hundred years ago, is fraught with difficulty, and may be the reason why the importance of story cohesion to the intellectual process has not been obvious.

What we are so proud of, our logic, probably has its etiology in story cohesion. The first childish understandings of causality may well have their roots in the story. When we try to understand types of causality that do not easily translate themselves into a story, we have considerable intellectual difficulty. One can speculate how different our logic would be if the story were not the basis of our intellectual cohesion.

The importance of story cohesion in the evolution of our species can partly be gauged by the extent that the listening and telling of stories is linked into the pleasure centers of our brain. For anyone who doubts the linkage, remember the transfixed hours spent in front of the tube as you watch story after story unfold. Every modern prison system knows the symptoms of stimulus deprivation that occur when the major television system goes on the blink. Is the need to hear stories not only basic but necessary to our nervous system?

Is there a human culture anywhere that does not tell and listen to stories? To my knowledge, none has been discovered. For those of us who have worked in defectology, it has always been puzzling that blindness does not produce the cognitive deficits of deafness. Is this because, without the story to develop cognition, such development is crippled? From a comparative view, I also wonder whether the chimpanzees, with whom we are beginning to communicate in sign language, will also eagerly listen to stories.

Is there intelligent life some place in our galaxy that does not tell stories? What would these creatures for whom the story is not the basic form of intellectual cohesion be like? What would they talk about? Would they seem like schizophrenics to us? Or would they appear like computers? And would we have as much difficulty in communicating with them as we do with our own sick or with our machines?

Summary

The data with the Ball-Stick-Bird method make it appear that story cohesion, as the basic form of intellectual cohesion, is earlier in development and cognition than we had thought possible on the basis of IQ tests. Because these tests have determined what we think is intelligence, their importance has frozen educational techniques into the pattern of turn-of-the-century education, which the tests had been designed to sample. This has happened in spite of the early innovations of Montessori (1930) and later Piaget (1970), and so many since. Not only have we reified IQ tests, frequently making a high score synonymous to success in life, the tests have determined what we consider easy or difficult, early or late in child development. The content of the tests, in spite of contrary data, has dramatically influenced our perception of how children think and solve problems.

Note

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L'enseignement de la lecture par des histoires opposée à la hiérarchie cognitive

La Suggestopédie met l'accent sur l'utilisation d'histoires intéressantes comme moyen d'enseigner des matières telles que la lecture ou les mathematiques. Un soutien indépendant de cette notion vient du travail de cet auteur qui enseigne la lecture par des histoires avec la méthode appelee "ball-stick-bird."

Das Lehren des Lesens durch Geschichten gegen eine kognitive Hierarchie

Suggestopädie betont den Gebrauch von interessanten Geschichten als Hilfsmittel für das Lehren von solchen Sachen wie Lesen oder Mathematik. Unabhathängiger Beweis für diesen Begriff kommt von der Arbeit des Autors mit dem Lehren des Lesens durch Geschichten in der Ball-Stock-Vogel Methode.

El entrenamiento del leer con cuentos vs. jerarquía cognoscitiva. - La Sugestopedia da énfasis al uso de cuentos interesantes como vehículos para el entrenamiento de materia en la aula así como la lectura o la aritmética. El sostén independente por esta idea viene del trabajo de la autora en el entrenamiento del leer por cuentos en el método de pelota-palo-pájaro.

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Experimentation with the Lozanov Method in Teaching Word Retention to Children with Learning Disabilities

Wally Nelson

Abstract

This study tested the effectiveness of the Lozanov approach in the teaching of word retention to children 6-8 years of age with learning problems. Three children referred to the Special Education Diagnostic Clinic at Kansas University Medical Center were randomly assigned to the Lozanov experimental treatment and another similar two students assigned to the control treatment. All students had initial baseline criterion scores of zero. All experimental students had daily quiz and end of learning test scores of 75% or more, but the control students taught traditionally had some daily quiz scores, but no end of learning test scores, meeting this criterion. In addition, the average acquisition and retention test scores of the experimental group were significantly ($p < .05$) higher than those of the control group. Thus, it was concluded that the Lozanov approach with learning disabled students was a better approach than the traditional one. The influence of other variables was noted and commented upon.

INTRODUCTION

Ongoing research in neuroscience and the resulting new direction of educational psychology seem to call for the exploration of new approaches concerning the relation between modes of consciousness and learning. Of specific concern is the effect of these directions to the field of learning disabilities.

When children experience difficulties or failure in the learning process, it is a matter of concern to educators and parents. The effects of continuing failure on the human being, especially when it is recognized by the person himself, has been well documented in psychiatry, psychology, and educational psychology. The failure in learning disabilities is well known (Kass, 1969). When a child is not achieving as expected, the resulting frustration is not only felt by the child, but the parents and other adults responsible for his welfare. Special educators of the learning disabled are continually exploring new methodologies that will alleviate the frustration and anxieties of failure in the learning disabled child and facilitate his learning abilities and self-concept.

In research in the field of learning disabilities, it is unusual to find any investigations that do not mention emotional difficulty as an associated finding in children who have learning problems. Hammill and Bartel (1971) felt that associated emotional difficulties in the learning disabilities population was a "given" fact. While emotional difficulties in association with learning disabilities is not a point of disagreement, there is disagreement evident when treatment approaches differ and when cause versus effect is discussed. One point of view contends that the child does not read because of an emotional difficulty and the other that the emotional difficulty was the secondary result of the primary learning disability. While the cause and effect issue has yet to be resolved, the majority of studies seems to support the concept that emotional problems in most cases of learning disabilities are secondary, rather than primary, in nature. Quadfasel and Goodglass (1968) noted that in our culture, it is almost inevitable for a child to develop an emotional disturbance as a result of a severe reading handicap and its effect on his performance, and the reaction of his environment to him. These emotional reactions are, by non-prejudiced observers, considered a secondary reaction and not a primary cause.

Although the majority contend that emotional problems are a secondary effect , there are certain traits found to be shared by many of these children. One of these traits is anxiety. Klasen (1972) pointed out that dyslexia did not exist as an isolated problem. It is always accompanied by associated or secondary complications. They concluded from their observations that psychological difficulties increased in direct proportion to the duration of unrecognized and untreated learning problems and that psychologically-caused dyslexia is extremely rare. In their observations, a trait that was noted in the majority of children was anxiety.

The deleterious effects of anxiety have long been recognized by psychiatrists, psychologists and educators. Connolly (1971) stated that anxiety is a characteristic found in the learning disabled population with great frequency. Bender (1956) indicated that anxiety is defined as a primary response of an organism frustrated by its own incapacities and by the inadequate efforts made to meet its needs. Holt (1964) pointed put that some observers feel there is a large amount of fear associated with the school experience, such as fear of failure, of ridicule from teachers and competition from peers. The learning disabled youngster encounters these same anxieties to an even greater extent because of his inability to achieve.

Connolly (1971) contended that since anxiety is one of the most uncomfortable of all human conditions, it becomes a source of avoidance behavior and the cause of the adoption of various defense mechanisms. Thus, a learning disability frequently is followed by the establishment of defenses that serve, in effect, to help the child account for his failures. Kretch (1962) noted a tendency for cognitive change to occur when an individual encountered interference. While this change can either be adaptive or maladaptive, frequently the effects of frustration and anxiety result in cognitive modifications that diverge from reality. This leads to ideas and behaviors that do not aid the child in coping with his situation. Thus, when faced with an obstacle such as a learning disability, a child may alter his beliefs and feelings about his goals and himself. Such defenses established early may remain long after their original use has outlived itself. Connolly (1971) noted the defensive measures that helped to produce cognitive change may become functionally autonomous and continue to exist independently of their original purpose. Allport (1961) defined this concept of functional autonomy as referring to any acquired system of motivation in which the tensions involved are not of the same kind as the antecedent tensions from which the acquired system developed. An example is the child with a learning problem that continues to view himself as slow and inferior years after his disorder has been overcome. The self-perception becomes autonomous and continues to exist and sustain itself despite the fact that its original cause, the learning disability, is no longer an important factor.

Attitude change is frequently required when working with the learning disabled population (Connolly, 1971). After experiences of failure and frustration, a child often has established very intense negative feelings toward school and the learning task in general. Before effective remediation can begin with this type of child, it may be necessary for his attitudes to become altered and his mental set more conducive to learning.

While no one denies the importance of the learning disabled child's personality development and adjustment, too often no one really does anything about it. Schools and teachers often feel incapable of dealing with such problems and children are referred elsewhere for their emotional problems. McCarthy (1971) noted that the focus of remediation has passed from the social worker to the pediatrician to the psychiatrist to the psychologist to the neurologist to the endocrinologist and then back to the teachers. She stated, "One has to come to grips with the possibility that we are going around in circles rather than making progress (p. 15)". McCarthy expressed hope that in the foreseeable future neuropsychologists such as Karl Pribram would be able to tell us something meaningful about the chemistry of learning in human children.

A look at continuing developments in neuroscience is showing us new directions for education. Sperry (1975) noted that new concepts of consciousness and the working of the human brain have emerged since 1961 when the first opportunity presented itself to study a human split brain. The subsequent research that has emerged has demonstrated that the right and left hemispheres are specialized for different functions. Sperry stated:

> The left and right hemisphere have been found to have their own specialized forms of intellect. The left being highly verbal and mathematical, performing with analytic, symbolic, computer-like, sequential logic. The right, being spatial, mute, performing with asynthetic spatio-perceptual and mechanical kind of information processing that cannot yet be simulated by computers. (p. 31)

The left hemisphere tends to analyze the whole into its parts, while the right sees the whole. Ornstein (1973) in his efforts to mesh science and intuition, expressed views that concur with those of Sperry. It is his view that in most individuals, the left hemisphere controls analytical processes associated with language, logic, mathematics, science and reason. The right, controlling more intuitive processes, relates to fantasy, music, art, space orientation and spirituality. In essence, the left hemisphere thinks sequentially, the right, simultaneously.

Most modern theories of brain function relate specific physical and mental activities to certain places in the brain. John (1976) pointed out that the localization theory does not explain why people with severe brain damage sometimes recover lost functions completely. He notes that one of the best known skeptics of the localization theory was Karl Lashley. Lashley, even in the early 1930's, proposed that many different regions of the brain carry out the same function. Lashley proved that memory is distributed throughout the brain and that learning involved a field of activity. John proposed a theory that reconciled the two theories, that many brain functions are distributed throughout most regions, but some regions contribute more than others to any given function. For example, the motor system has the biggest role in movement and the visual system in seeing, but many other parts of the brain play a role in these functions.

John (1976) indicated that assumptions have been made that when we learn something, new connections are made between nerve cells in different parts of the brain. Our memory, such theories hold, lies in these connections. Remembering means the connected cells have been activated. He found, through his electrophysiological research, indications that memories do not consist of new connections between cells. He says,

> It is not the location of the cells that matters, but rather the rhythm at which they fire. When we learn something, small groups of cells in many parts of the brain learn a new rhythm of firing corresponding to the learning. The memory of what is learned is not to be found in a specific brain region, but rather in its unique cell-firing rhythm. (p. 52)

The brain does not work like a printed circuit; it is like a symphony orchestra.

Pribram (1971), a neuroscientist who worked with Lashley, has accumulated evidence that the brain's 'deep structure' is essentially holographic, analogous to the lensless photographic process for which Dennis Gabor received a Nobel prize in 1971. He proposes that the hologram is a powerful model for brain process. The frequency domain is important in neural processes according to the holographic theory of brain function. Stimuli are perceived by the senses via complex mathematical transforms, an interpretation of interference patterns, much as a hologram is reconstructed by its light source. Pribram theorizes that it explains phenomena not otherwise explicable, such as distribution of memory throughout the brain. Pribram contends that theories based on the brain's capability to analyze frequencies seem more powerful than specificity theories (those that say the brain abstracts specific features from the environment). The frequency analyzing approaches help to account for evidence that various perceptual systems can cross-interpret data normally associated with other senses. Synesthesia, "hearing" colors or "seeing" sounds, would come under this category. Sperry (1975) believed one of the most important things to evolve from brain research was a changed idea of the conscious mind and its relation to brain mechanism. The new reformulation involves a break with long established materialistic and behavioristic thinking that has dominated neuroscience for many decades. Instead of considering consciousness as an "epiphenomenon", or impotent by-product, the present interpretation would include the conscious mind as an integral part of the brain process itself and an essential constituent of the action. It thus becomes a causal determinant in brain function. He stated:

> After more than 50 years of strict behaviorist avoidance of such terms as "mental imagery" and visual, verbal, auditory "images", in the past few years these terms have come into wide usage as explanatory constructs in the literature on cognition, perception, and other higher functions (p. 33).

Ornstein (1972) noted that in the field of education, behaviorism stimulated productive research in the realms of learning and the modification of behavior. But processes that did not fit into the behavioristic model limited the scope of inquiry and psychologists ignored or even denied existence of phenomena that did not fit the scheme. "Consciousness" itself was, for years, ignored or denied and behaviorism was viewed as a "total extent of knowledge" rather than "a useful tool". Sperry (1975) stated that the shift in neuroscience and psychology toward a model for the interaction of mind and matter restored some dignity and other humanistic attributes which had been deprived by the behavioristic approach.

Sperry (1975) said the implications for education emerging from these new concepts of the human brain indicated that our educational system and society generally discriminated against one half of the brain. He stated, "In our present system, the attention given to the minor hemisphere of the brain is minimal compared with the training lavished on the left or major hemisphere." Ornstein (1973), as a result of his research, suggested a need for revision of the way children in the Western world are educated. He points out that education today almost exclusively involves a transmission of knowledge through words, either written or spoken; this feeds the left hemisphere. The right hemisphere, though not the home of the speech center in the vast majority of people, still is dominant when practical intelligence is called for. Yet the right hemisphere is generally ignored in current educational systems.

Neuroscience and psychology seem to be calling for new directions in education, causing us to ask questions concerning the extent to which our one-sided approaches are interfering with learning, calling us to look at more humanistic and global approaches that might greater affect learning. Could a more 'holistic' approach produce better learning or eliminate some learning problems?

An approach that has been gaining attention in the Western world was developed by Dr. Georgi Lozanov of Bulgaria. The approach appears to reduce anxiety and enhance learning. It has been referred to as Suggestology, Suggestopedia or the Lozanov Method. Suggestology is the scientific study of the psychology of suggestion and suggestopedia is the application of suggestion techniques to learning. Relaxation, imagery, positive suggestion and music are used in the approach. Theoretically, suggestion is used to remove barriers and information then bypasses emotional blockage to go directly into the long-term memory of the brain. Consequently, learning is faster, more enjoyable and results in higher retention. The approach is based on the theory that subconsciously we receive signals from many sources that are subjective, not rational or conscious. These subconsciously received suggestions affect our attitudes and thereby affect our behavior. From his psychotherapy work, Lozanov realized there were important communication factors that could be applied to the teaching process. The approach uses these factors on both the conscious and unconscious levels, which he refers to as double-planeness. On one level, we communicate logically and consciously (equating to left brain functions) while on another level, we communicate subconsciously and emotionally (equating to right brain functions). The approach focuses on the whole person and the recognition that there is a conscious and unconscious level in every communication and relational situation. Lozanov contends the approach can be used with all age groups and all subjects.

Because of the possible implications of the approach for the field of learning disabilities, an experimental class was taught using elements of the Lozanov method to teach word retention to children with learning problems.

The research question of the study was: For six to eight-year-old learning disabled children, is there a difference in the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

Definition of Terms

Suggestology : The scientific study of the psychology of suggestion, the objective of which is to study the world of psychic reactions which pass unnoticed on the conscious level.

Suggestopedia : The application of suggestion techniques to learning. This approach has organized the unconscious suggestive factors in the learning process as a global approach to the pupil and which creates a learning environment that will activate the reserve capacity of the brain.

Anti-suggestive barriers : Psychological barriers in the individual that prevent the reception of suggestion. According to Lozanov, the three principle barriers are: (a) critical-logical: rejects suggestion that it judges rationally unacceptable based on personalized norms the individual has developed, (b) intuitive-emotional: rejects suggestion that fails to create a feeling of confidence or security in the individual, and (c) ethical-moral: rejects suggestion that is not in harmony with the ethical sense of the personality.

Non-specific mental reactivity : A psychological mechanism of the unconscious that perceives the nonverbal, subliminal aspects of communication.

Pseudopassivity : State of apparent external calmness and relaxation with internal unconscious activity taking place.

REVIEW OF LITERATURE

The purpose of this section is to look at Suggestopedia in depth and to present the research related to this approach and supportive, related information. This review will cover the following areas: (a) definition, (b) historical background, (c) theoretical background, (d) the suggestopedic cycle, and (e) related studies.

Definition

According to Lozanov (1971, 1975) the suggestopedic system of instruction is a desuggestive-suggestive system. It frees the capabilities of the individual which are inhibited by the socially conditioned suggestive norm and, at the same time, it presents new material, in a positive and stimulating suggestive environment. Suggestopedia, as a system of instruction, is not aimed solely at improving man's memory, but also at stimulating intellectual activity, raising emotional tone, and having a favorable effect on the whole personality. He stated that the object of Suggestology, the science of suggestion, was to study the boundless world of psychic reactions which pass unnoticed on the conscious level of the individual.

Lozanov (1975) proposed that suggestion was important in every ordinary communicative process. It is particularly intensified and well organized in the various arts, and plays a part in teaching, though most often it is left unorganized and unutilized by the teacher. The suggestopedic teaching system has more or less organized the unconscious suggestive factors in the learning process as a global approach to the pupil, an approach that will create a learning environment that will activate the reserve capacity of the brain.

Schuster, Bordon, and Gritton (1976) defined Suggestopedia as a method that utilized aspects of human suggestion and unusual styles of presentation to accelerate learning. According to Racle (1974), it is a vehicle by which students are conditioned to react to positive suggestions in a learning situation, so as to open the human potential and by-pass negative influences of learning and efficiency.

Historical Background

The purpose of this section is to give an overview of the development of the suggestopedic system in Europe and North America. A secondary purpose was to chronologically summarize the significant activities of Dr. Lozanov's numerous and varied research and the development of research and activities in the West that have been generated by interest in Dr. Lozanov's work. Specific details and results of the research overviewed in this section will be given in a later section on Related Studies.

Dr. Georgi Lozanov, physician and psychotherapist, is director of the Institutes of Suggestology and Parapsychology in Sofia and Petrich and is the father of parapsychology in Bulgaria. He is a celebrated doctor and famous not only in Bulgaria, but also throughout the Communist bloc countries for his discoveries dealing with the supernormal powers of the mind.

After becoming interested in parapsychology and yoga at an early age, he studied psychology and psychiatry at the University of Sofia and received his Ph.D. from Kharkov University in the Soviet Union. His thesis dealt with practical applications of suggestion in fields of medicine and education.

Dr. Lozanov first published an article on suggestive hypermnesia in 1955. The first collective experiments were conducted during 1964 at the post-graduate Medical Institute in Sofia and later at the Research Institute of Pedagogy at the Ministry of Education in Sofia.

In 1965, the Ministry of Education and the Ministry of Public Health and Social Welfare issued a decree to set up a research group at the Institute of Pedagogy to study the problems of training by the suggestopedic method. The objective of this group was to organize and carry out suggestopedic experiments with experimental and control groups. This experimental work was supervised by a special committee. The results obtained were reported by the research group to the Institute of Pedagogy which examined the report submitted at an enlarged session of its Research Council and discussed the impressions of all participants in the experiments. A report from this session was delivered to the Ministry of Education and to the Minister of Public Health and Social Welfare. As a result, a Section of Suggestopaedy was set up at the Institute of Pedagogy. This Section continued the experimental work begun by the research group on Suggestopaedy.

Because of expanded activities and research that extended beyond the competency of the Pedagogical Institute, it became necessary to set up an independent Research Center which was later transformed into a Research Institute of Suggestology. The Institute teaches regular classes and studies physiological and psychological processes that are responsible for mind and memory expansion. The Institute at Sofia has a staff of 30 scientists of varying specialties including physiologists, engineers, doctors, physicists, education specialists , and psychologists. In addition to a lab for the study of parapsychology at the Institute, there is a second lab for the study of physiology of subsensory stimulation and a third one to investigate the psychology of suggestion.

The first educational application of suggestology in Bulgaria was the teaching of foreign language. English, French, German, Italian and Russian were taught to adults followed by application to mathematics, history, literature, physics, chemistry and biology from 1967 to 1972. Starting in the 1970-71 school year, the suggestopedic method was used to teach a tenth grade class all the subjects in its curriculum. In 1972, the program was adapted for elementary school subjects. Lozanov reports it is now used in selected schools from nursery school through the university level in Bulgaria.

Interest in Lozanov's work brought educators from India, Germany, and Russia to Bulgaria to observe and learn about the method. Reports indicate that these countries established their own Institutes of Suggestopedia. The Moscow Foreign Languages Pedagogical Institute's success with the m ethod made headlines in Pravda in July, 1969 (Schroeder & Ostrander, 1970).

A research Centre of Mnemology was founded in the German Democratic Republic in 1968, which was designed to implement the Bulgarian suggestopedic method. The suggestopedic experiments conducted in Germany confirmed those results obtained by the Research Institute of Suggestology in Sofia as did successful suggestopedic experiments conducted in Moscow and Kharkov in Russia in 1969 (Racle, 1977).

In the West, UNESCO and the Ford Foundation expressed interest in the technique. By invitation, Dr. Lozanov lectured at New York State College at Albany in 1969. After Lozanov's research was reported by Shelia Ostrander and Lynn Schroeder in 1970, suggestology was explored by other North Americans. The Canadian government sent two representatives to an international symposium in Varna, Bulgaria, in 1971. In 1972, Canada acquired the rights to the Lozanov system as part of a cultural exchange agreement between the governments of Canada and Bulgaria. In 1972, the Public Service Commission of Canada sent a team of teachers to be trained at Sofia. They returned to begin the method in Canada and later, as a program of the Canadian government in 1973 and 1974. Reports indicate that the teaching of language, English and French, has been the primary application of Suggestopedia in Canada to date.

The first North American educator to make contact with Dr. Lozanov was Dr. W. J. Bancroft in 1971. Dr. Bancroft, associate professor of French, Scarborough College, University of Toronto, spent four weeks at the Institute of Suggestology in Sofia. She has since made several extended visits to Lozanov centers in the USSR, Hungary and Bulgaria. Dr. Bancroft has published several articles on her observations of the Lozanov technique, as she saw it practiced in Bulgaria. Her information provides key background data of the elements of the Lozanov system and her publications represent the fundamental body of knowledge on Suggestology available in English.

In the United States, experimentation with the Lozanov Method has been developing since 1971 (Caskey, 1977). Much of the work has been applied to language studies since the original suggestopedic methodology was designed for this application. Language studies at the university level have included Russian, Spanish and Bulgarian. On the high school level, there have been applications in Latin, Spanish and German.

In 1971, Schuster, Bordon, and Gritton of Iowa State University began research of independent and dependent variables in order to determine the relative interaction of suggestive-accelerative components and their application to a public school setting. Research has been conducted with Spanish, statistics, and rare English words on the university level, and math and science on the junior high level.

Carol Lockhart of the Southwest Educational Development Laboratory was sponsored to attend Bulgaria in 1971 by the office of the Governor of the state of Texas and was in the same group with Dr. Jane Bancroft. Due to the lack of funding for the laboratory, no research was conducted, but because of her enthusiasm about its possible applications, Ms. Lockhart contacted several individuals and universities (Caskey, 1977).

Elizabeth Philipov, in 1973, experimented with the Lozanov Method in teaching Bulgarian at the University of California. Because of her support, the first International Congress on Suggestopedia was held in Los Angeles in 1975. Elizabeth Robinette, after experimenting with the Lozanov approach in 1974 in teaching first-year college Spanish students at Texas Tech University, has continued this approach in the counseling field. Because of the interest generated at Texas Tech, several sections of first-year Spanish courses are offered each year, using elements of Suggestopedia.

Caskey (1977) notes that while most of the experimentation has been with languages, a number of researchers have investigated other applications. Allyn Prichard, after a trip to Bulgaria in 1974, worked with Jean Taylor to implement the Lozanov approach at an elementary school level. He and Taylor initiated a remedial reading program in a suburban Atlanta school. Owen Caskey, at Texas Tech, has experimented with practical applications of suggestive-accelerative techniques such as remedial reading for adults, business accounting, and English grammar. Dean Held, after doing research on the Lozanov Method, has developed practical applications at the University of Wisconsin for reading methods and has been working with its application to the field of learning disabilities.

In 1975, a society was formed to bring together the researchers and practitioners in the field. The society was formed under the name of Suggestive-Accelerative Learning and Teaching (SALT). The purpose of the society is to provide data and information to educators, counselors, psychologists and other professionals on the experimental work they and others are conducting on the Lozanov Method. The society publishes a journal, *The Journal of Suggestive-Accelerative Learning and Teaching* , that covers current research and technical information. A manual was developed for experimenters and teachers by three members of this society, Schuster, Bordon, and Gritton of Iowa, and is the only such manual available to date in the Western world.

Caskey (1977) states that the society has had two very practical results. The first has been the development of a communications network among those who teach, research and practice in areas related to suggestive-accelerative techniques. Another result has been the sponsorship of two international conferences held in the springs of 1976 and 1977. Another emerging influence has been the development of a teacher training program at Iowa State University and the related research projects which are being conducted in the public schools in Iowa. Caskey indicates that this research will provide fundamental and valuable contributions to the understanding of how suggestive-accelerative techniques may be used on a large scale in the American system.

Chronological Summary of Suggestological Research and Activities

1952-53: Studies of hypnotic age regression.

1955: Publication concerning suggestive hypermnesia. Study of heartbeats under hypnosis. Publication of research into hypnotic age regression.

1957: Treatment of a case of diabetes by suggestion.

1958: Treatment of a case of acute ulcer by suggestion.

1959: Treatment of various cases, such as skin diseases, by suggestion. Studies of the desynchronization of eye movements and age regression under hypnosis. Publication of research into hypnotic age regression. Publication of text on "suggestion".

1960: Treatment of negativistic barriers by inverse suggestion.

1963: Publication on hypermnesia. Whispering and other psychotherapeutical methods (satisfaction through suggestion, decreased rate of respiration).

1964: Experiments in suggestive hypermnesia. Publication on suggestive hypermnesia. Studies of eye movement. Studies of telepathic phenomena.

1965: Experiment in integral psychotherapy. Experiment in suggestopedic teaching organized by the Ministries of Health Education at the Sofia Pedagogical Institute. Psychogenic anesthesia. Experiment in hypnopaedia.

1966: Report of the Research Council on the experiments performed at the Pedagogical Institute. Creation of a suggestopedic section at the Pedagogical Institute. Experiment in memorizing 1,000 French words in a single session. Publication of article by Lozanov on suggestopedia and hypermnesia. Studies of eye movement. Opening of Suggestopedia Research Centre of the Ministry of Education (October 6). Suggestopedic language courses. First education application in foreign languages; English, French, Italian, and Russian taught to adults.

1967: The Research Council of the Centre is approved by the Ministry of Education. Experiment in memorization assiciated with subsensory stimuli. Experiment in memorization (using prestige).

1968: Lozanov explains to Congress of Psychotherapy in Vienna his concept of a therapeutic mechanism common to all methods. Founding of Mnemology Centre at Karl Marx University in Leipzig.

1969: Suggestopedic course in mathematics at the Sofia Institute. First experiment in suggestopedic courses in Moscow. UNESCO and Ford Foundation express interest. Lozanov is invited to lecture at New York State College in Albany. Moscow Pedagogical Institute reports success with Method.

1970: Suggestopedic teaching experiment in Kharkov. Second experiment in Moscow. Experimental class using suggestopedic approach for tenth grade students for the school year. Schroeder and Ostrander bring attention to Lozanov's work in their book, *Psychic Discoveries Behind the Iron Curtain* .

1971: Lozanov submits his scientific thesis, *Suggestology* , to the Kharkov Medical Institute, and it is accepted. The Centre for Research in Suggestology becomes an Institute. Publication of *Suggestology* by Lozanov. First International Symposium on Suggestology at Varna. Canadian government sends representatives to International Symposium in Varna. United States experimentation begins by Schuster, Bordon, and Gritton at Iowa State University and in the Iowa public school system. Jane Bancroft of Canada and Carol Lockhart of Texas visit Bulgaria.

1972: Suggestopedic program adapted for elementary school subjects. Canadian government sends team of teachers to be trained at Sofia.

Theoretical Background

Some theoretical considerations are important in the process of applying the science of suggestion to the teaching field. Lozanov's book, *Suggestology* , is a summary of twenty years of experimental research into the problems of suggestion. The two main trends of his work are: (a) the extensive study of suggestive phenomena, and (b) the application of these phenomena to the field of education.

Important in the suggestopedic approach are the (a) three anti-suggestive barriers that prevent learning and the need for the removal of these barriers through de-suggestion, (b) the role of unconscious mental activity and the utilization of six basic suggestive elements which, when recognized and utilized, enhance the learning process, and (c) the methodology techniques implemented to produce this enhanced learning.

Anti-Suggestive Barriers

Lozanov (1975) theorizes that the individual protects himself with psychological barriers just as the organism protects itself with physiological barriers. He refers to these psychological barriers as anti-suggestive barriers and proposes they block our reception to suggestion. The suggestopedic process is designed to de-suggest the restrictive barriers and create a positive suggestive atmosphere where learning is easy and pleasant. According to Lozanov, there are three principal barriers to the reception of suggestions: (a) critical-logical, which rejects suggestions it judges rationally unacceptable, (b) intuitive-emotional, which rejects anything likely to produce a feeling of lack of confidence or insecurity and (c) ethical-moral, which rejects everything not in harmony with the ethical sense of the personality. In relation to the educational process, this barrier deals with the feeling that learning is unpleasant and hard work.

Therefore, according to Lozanov (1971), the most essential problem in practical suggestology is the type of methodological approach to be used to surmount the three anti-suggestive barriers. The psychological mechanisms of overcoming and coordinating the anti-suggestive barriers are embedded in what he refers to as the non-specific mental activity.

Role of Unconscious Mental Activity

Lozanov (1971) states that an enormous body of information enters the central nervous system in the form of subliminal signals more or less outside the scope of the conscious mind. Experiments in hypnosis have proven the existence of these subliminal and unconscious perceptions, according to his thesis. Non-specific mental reactivity is an important element of the unconscious since it perceives the hidden sense in human speech; it is the intuitional insight that had a guiding role in primitive man. While it has further developed in the adult today, it has become more hidden and less perceptible. Lozanov states that this non-specific mental reactivity creates the favorable ground on which suggestion thrives and is the way of surmounting the anti-suggestive barriers. He considers six mechanisms important in utilizing non-specific mental reactivity in the suggestive learning atmosphere. The elements are: (a) authority, (b) infantilization, (c) double planeness, (d) intonation, (e) rhythm, and (f) pseudopassivity.

Authority

Lozanov (1971) considers practically every suggestive method to rely on authority. Authority provides the easy surmounting of anti-suggestive barriers since it is one of the factors in non-specific mental reactivity. The suggestive factor increases the receptivity of the receiver, but in most cases is unconscious. He implies that the anti-suggestive barriers are more easily overcome if the student is unaware, at the conscious level, of the actual techniques being used. According to his thesis, Lozanov's experiments have shown that, in the classroom, authority plays an important role in memorization. Foreign language words and phrases have been memorized with a considerably high percentage with only this one suggestive factor. Lozanov maintains that this does not signify abandoning the other suggestive factors since a high quality of authority is not easily achieved or maintained.

Schuster, Bordon, and Gritton (1976) cite that the authoritativeness and prestige of the instructor to insure that what he says will be taken as suggestion and will be acted upon by students d will be acted upon by students. Also, it is an important factor in reaching the second technique of infantilization

Infantilization

Infantilization in the Lozanov Method is not related to the Freudian concept of the subconscious or the Freudian idea of bringing out the patient's childhood experiences (Bancroft, 1976). Rather, it is a selective mental set-up (Lozanov, 1971) of confidence, peace and spontaneity. If the student is in a childlike state (not childish), he is more open to learning suggestion. Consequently, learning is accelerated and memory is improved. The intellectual abilities of the adult are not decreased or eliminated with infantilization, but certain characteristics of the child, such as spontaneity and ability to memorize, are brought out.

Lozanov (1971) notes that it is well known that a child can memorize much greater information than an adult. With the advance of age, this memorization ability suffers with the growth of the powers of reason and the social ideas regarding the limitations of human memory. Infantilization allows adults to learn in a child-like way under natural conditions, using unconscious factors.

Double Planeness

Double planeness refers to communication on two levels: the verbal and nonverbal level. On the nonverbal level, the whole environment of the spoken word is involved in nonverbal signs, gestures, intonations and motions.

The Soviet psychology of the 1960's considers the physical and social environment to affect both the conscious and unconscious mind (Bancroft, 1976). In line with this theory, suggestology does not consider the individual separate from the environment to which he belongs. Subliminal or unnoticed stimuli have a great influence on a student's ability to learn.

Lozanov (1971) states that an enormous stream of diverse stimuli are emitted from the personality and, quite often, these unconscious signals have great informative implications for the receiver. Implications in tone of voice, rate, speech and also in the psychical environment can play an important role in suggesting the desired results. This "second plane" is a source of our intuitive impressions which influence our relations to persons and situations in a way that is initially incomprehensible to the conscious mind.

Lozanov (1971) suggests that these two planes must be harmonized in the learning setting to utilize the reserve capacities of the unconscious mental activity, but that the second nonverbal level is often ignored completely or underestimated. Thus, Prichard (1977) points out that teacher training in the United States on the implications of this important area is non-existent.

Intonation

Intonation is the fourth primary mechanism that Lozanov considers important. The tone of voice or intonation conveys the real, underlying message of speech. Words can have a suggestive effect that engage the unconscious mental activity. Intonation is important in the suggestopedia context because of its effects on memorization (Bancroft, 1976).

The Institute uses three different intonation, or voice, levels in presenting new material to be memorized: (a) a normal, natural voice, (b) a loud, authoritative voice, and (c) a soft, whispered tone. Experimentation was conducted on the rhythmical intonational presentation of the material. First, what Lozanov calls "horizontal intonational swing" was used with each word or phrase and repeated three times, each time with a different intonation. Next, "vertical intonational swing" was used with each word or phrase presented only once, but each in a different voice level. Lozanov (1971) reported that the memorization results were the same and, due to the time economy, he has continued with the "vertical" approach.

In addition to increased memorization, intonational presentation was found to be more pleasant and to eliminate boredom. Schuster, Bordon and Gritton (1976) note that the dynamic variation of intonation helped attract and keep the students' attention.

Rhythm

A continuous, rhythmic presentation can engage the non-specific mental activity and result in an easy overcoming of anti-suggestive barriers. Also, the correct rhythmically intonational presentation insures increased and extended memorization.

Although Lozanov provides no methodology for 'correct' presentation of materials, he considers rhythm a basic biological principle affecting physiological and psychological processes. Lozanov contends that the rhythm in various art forms, such as music and dance, have a deeply penetrating suggestive effect. The rationale for the use of the intonational swing and rhythm is that a substantial, suggestive influence is reached through their use (Philipov, 1975).

Pseudopassivity

This refers to the concept that suggestion is best realized when the recipient is in a deeply relaxed state. According to Lozanov (1971), the more relaxed an individual is, the more open he is to suggestions of various kinds.

A part of the language class of the Lozanov method is referred to as the "concert session" or "passive session", where the language material is read against a background of classical music. Lozanov (1971) notes that the students appear relaxed and calm, as if attending a concert, and they are directed not to pay active attention to the presentation. While the students appear relaxed and calm externally, there is considerable internal activity taking place. "Therefore," he says, "in suggestopedic training, it is a matter of apparent passiveness or a pseudopassiveness (p. 303)".

This state of concert pseudopassiveness, according to Lozanov, is meant not only to take place during the "concert" or "passive" session, but maintained during the entire learning experience. Bancroft (1976) cites that this internal activity is unconscious, but more conducive to hypermnesia than conscious voluntary attention. Philipov (1975) points out that pseudopassivity is a state of psychological relaxation and is an activity of inner attitude, rather than a behavioral one.

Methodology Techniques

To assist the instructor in the implementation of the important basic elements, several techniques are currently being used. Since much of the methodological techniques of Lozanov's work is still unavailable, reports of educators who have visited the Institute and the experimental work of interested researchers have elucidated many of the specifics of these techniques. The following techniques will be discussed: new identification, music, imagery, relaxation, and early pleasant learning restimulation.

New Identification

To help overcome inhibitions, new students are provided a new foreign name and biography in the Lozanov language class (Bancroft, 1976). According to Lozanov (1971), this technique is valuable to permit mistakes by the student. Often, students feel uncomfortable in learning a foreign language and this technique, through role playing, allows the student to forget his personal worries and live imaginatively with his new identification during the course.

Music

Lozanov (1971) contends that music enhances the learning atmosphere. It does not alone provide for easier memorization, but rather the rhythmic presentation of material increases the volume of learning.

Some kinds of music have been related to a relaxed and passive state, which frees the individual from anxiety and worry. Baroque instrumental music of the eighteenth century is thought to be especially suited to place the individual in a state of relaxation and meditation (Caskey, 1976).

Lozanov (1971) contends music helps create an emotional state that makes it possible to eliminate the action of the anti-suggestive barriers that block the reception of the message. He further maintains that one of the reasons for the concert sessions is that the material obtained in this part of the cycle is memorized for a longer period of time. Caskey (1976) states that the role of music is to support the learning process by acting as a medium to activate the subconscious. Direct flow of information to the unconscious regions results in easy and fast assimilation of the material when a musical background is used with a person in a relaxed, tranquil state.

Imagery

Samuels (1975) cites that visualization has been used as the basis for several systems for increasing memory. The whole process of remembering is tied up with images.

In the case of reading disability, the problem is sometimes one of difficulty in recall, particularly in cases where anxiety is strong and emotional blocking is severe. But, often, the main problem is not one of poor memory, but rather of failure to develop a mental image of the word which can be recalled at a later time. If there is no initial registration of the word, there will be nothing to remember (Harris & Sipay, 1975).

Johnson and Myklebust (1971) state that imagery, as a process, has been neglected in psychology and education and go on to say that in learning disabilities, it is not easy to evolve a comprehensive frame of reference without including imagery. This concept allows us to distinguish between the process of perception and memory. Perception is an ongoing sensation while imagery pertains to sensations and information already perceived and received. Imagery is considered as one process of memory. The lack of imagery ability, therefore, hinders the memory process.

Often, memory images involve one or more of the senses in addition to the visual component, although the visual part of a memory is generally the central aspect (Samuels, 1975). Schuster, Bordon, and Gritton (1976) suggest that it is important to instruct students to experience the material in all modalities as fully as possible, not only visually and auditorily.

Relaxation

Philipov (1975) states that the means of suggestion applied in their interconnected influence induce experiential states which have one common and predominantly important element, "relaxation".

Bancroft (1976) notes that Lozanov's investigations into hypermnesia originated from his knowledge of yoga. From his study of yogis in Bulgaria and India, Lozanov found hypermnesia linked to certain techniques of relaxation and concentration and conceived an educational system applicable to the classroom that could include their use (Bancroft, 1977). One of the reports in Lozanov's thesis describing the work at the Institute states: "The aim of which is to accelerate the teaching of a given subject through suggestion, under favorable conditions of physical and mental relaxation (auto-relaxation derived from yoga methods) (p. 427)."

Lozanov (1971) contends that mental relaxation is of greater importance than physical relaxation for the successful outcome of the teaching process. If the incompatibility of anxiety and relaxation is accepted as a theoretical premise, one must conclude that relaxation is of benefit. The fact that there is evidence that it is possible to achieve muscle relaxation without reducing tension and anxiety supports the major importance of the mental relaxation process.

Connolly (1971) states that anxiety is a characteristic frequently found in the learning disabled population. Because it produces great discomfort, it becomes a source of avoidance behavior and various defense mechanisms are adopted. To avoid the unpleasant condition, Connolly contends that a considerable amount of the child's psychic energies may be channeled in these avoidance behaviors. Rabinovitch (1959) also notes that a child whose anxiety level is high may be so preoccupied in the classroom that his attention, concentration and memory prevent achievement.

In a study with disabled readers, Held (1976) found mind calming, imagery techniques and positive suggestion effective in overcoming avoidance techniques. Likewise, Prichard and Taylor (1976) found Lozanov-type procedures, progressive relaxation, deep breathing and visualization techniques effective with remedial reading students.

Physical Relaxation

Schuster, Bordon and Gritton (1976) cite that the emphasis here is on muscle tensing and immediate relaxing, rather than strenuous exercise.

Research by Chaney and Andreasen (1972) show that when students were taught physical relaxation to control muscular tension, they performed significantly better on a random numbers recall test than students without relaxation training. This was found particularly important with anxious, tense or hyperactive children.

Pereboom (1977) reports that periods of relaxation therapy, including adapted yoga exercises, were more helpful than periods of tutoring and group counseling in improving behavior of children with learning disabilities.

Mental Relaxation

Some research indicates that mental relaxation is the desired result of all relaxation techniques, and that the degree of anxiety of the subject is an indicating factor as to which type of relaxation is first employed.

Brown (1977) considers relaxation as an awareness process. The goal of relaxation procedure is not simple relaxation, but voluntary control of the tension-relaxation dimension of muscles and the inexpressible, but subjectively known, awareness that gives one the ability for control. Brown notes that it is anatomically and physiologically true that the muscles themselves can do very little. It is the complicated and still obscure operations of higher mental activities that coordinate and direct every muscle movement we make, consciously and subconsciously. She proposes that biofeedback technology has elucidated the potency of higher mental control.

In regard to specific brain rhythm, the most precise expression of the behavioral state of relaxed wakefulness is identified with the alpha activity (Brown, 1977). It implies that the brain state is receptive and is not actively engaged in any specific mental or emotional activity. With anxiety, there may be a minimum or, occasionally, no alpha present in the electroencephalogram (EEG). Several biofeedback studies support this view.

Budzynski and Stoyva (1970) report using alpha brain wave biofeedback to teach relaxation to extremely anxious people. Using tension as a cue while employing EEG feedback, they found the results very promising. Kamiya (1969) finds muscular relaxation unnecessary for alpha brain waves to flow, but he did find that muscular relaxation often follows the alpha brain wave experience. Green (1970) also noted that highly anxious subjects have great difficulty producing alpha brain waves. He found that, with time, the uptight non-alpha person usually can learn to increase alpha brain waves and learn to relax.

In a study not employing biofeedback techniques, Mohr (1977) reported that persons who had relatively high stress levels had more success with progressive relaxation procedures than a mental imagery approach. Mohr noted that this research may indicate a way to distinguish individual differences which could be used to predict success with the progressive relaxation procedure.

According to Lozanov (1975), the many theories on the psychophysiology of memory alone are indicative of no final knowledge; only impressions have been arrived at. Psychologically, hypermnesia is connected with the subconscious areas of the personality which, in turn, are connected with some electrophysiological changes. Changes in the EEG have been noted. "The EEG's became more rhythmical, regular and calm (p. 295)". Lozanov attributes the change of waves not only to the process of instruction, but also to the calm atmosphere.

Scientific experiments conducted at the Institute before, during and after the class sessions have indicated that the EEG records of students show an increase in alpha activity, especially during the concert session. Lozanov (1975) contends that the high level of memorization stems from the suggestive factors included in their process of instruction that many people are unaware of. While the EEG is calm in the courses, he does not consider the alpha state solely responsible for hypermnesia. Brown (1977) states that all learning takes place via subconscious mechanisms, which is a fact we rarely acknowledge.

Early Pleasant Learning Restimulation

Lozanov (1975) states that the suggestive factors incorporated in the teaching process are responsible for hypermnesia. Early pleasant learning restimulation (EPLR) is a technique that utilizes indirect suggestion by having students remember their memory skills in an earlier pleasant learning experience. Schuster, Bordon and Gritton (1976) maintain that, by reconstructing an earlier pleasant learning experience, it brings into the present the sensations, feelings and abilities of a former pleasant learning situation. Of course, it is important that the student has had at least one fun learning experience previously. Once such memories are stimulated or recalled, the students are instructed to retain these feelings and learn the new material with the same sensorial feelings. The purpose of this technique is to develop a positive attitude and positive feeling toward learning by using indirect suggestive means.

The Suggestopedic Cycle

While many of the previously discussed elements and techniques of Suggestopedia are recognized by various disciplines in this country, their emphasis has often been ignored. The uniqueness and reported success of the Lozanov method is the integration of all these components into a holistic, functional system.

While Lozanov has made some modifications in the application of Suggestopedia in recent years, Caskey (1976) finds that the basic approach which he developed in the mid-1960's has remained the same for work conducted at the Institute at Sofia. Although, currently, the length of classes varies depending on subject matter or age level, the original three to four hour class period is recommended for language and other academic areas, when used with students high school age or above.

The three to four hour class is comprised of three distinct parts called the suggestopedic cycle, consisting of a review phase, a presentation phase, and a reinforcement phase, which is divided into two parts.

Review Phase

This part involves a review of the previously learned material. While this is usually done through conversation between teacher and student or student and student, it may also involve short sketches or plays in which the language material is used in new situations. Bancroft (1976) explains that members of the Institute are opposed to rigid , structural exercises and mechanistic repetition which are considered dehumanizing. The emotion is more important than the exercises themselves.

Schuster, Bordon and Gritton (1976) consider it important that a student is properly prepared in the first part of the session and use physical relaxation, mind calming and early pleasant learning exercises, as discussed earlier. This helps the student to be in a relaxed state and open to the positive suggestions given by the teacher.

Presentation Phase

The initial presentation of new material is made in a rather traditional way for most academic subject areas. In language, new material is presented in the form of dialogues or presentation of new words, parts of speech, grammar, or translations. Aside from grammar and translations, these would be conducted entirely in the foreign language. In other academic areas, it would consist of the presentation of new material appropriate to the subject matter area being presented.

Reinforcement Phase

The final part of the suggestopedic cycle is the reinforcement phase, which includes at least a one-hour session called a seance (used in the traditional French sense). The seance is divided into two parts: the active part and the passive, or "concert", portion. In the first part, dialogues are presented with varying intonation and often a coordination of sound and printed word or image. During the passive presentation, the dialogues are presented by the instructor over a background of calm, pleasant, slow-moving music.

Bancroft (1976) notes that, while elements such as role-playing would be of interest to the North American language teacher, the truly original part of the Lozanov method is contained in the seance. One of the consequences of intensive courses is fatigue and tension. Consequently, to relieve the tired feeling at the end of the class and to aid memorization, Lozanov and his colleagues created this one-hour session which is based on two forms of concentration, outer and inner. The active part of the session using active or outward concentration precedes the relaxation or passive, which emphasizes inward concentration.

Throughout this phase of the cycle, students recline in their chairs, breathe deeply and are in a relaxed state. Relaxation exercises are not done as part of the daily class, since students are expected to be able to relax immediately and automatically as a result of training before actual classes begin (Caskey, 1976).

Practice and Testing

Schuster, Bordon and Gritton (1976) point out that, in language classes, students practice on alternate days the material presented during the previous day's cycle. Thus, every other day, a three to four hour period of time would be spent practicing what had been presented in the previous day's lesson of three to four hours. It is noted that the practice can take several forms, such as conversing about a topic just covered, presenting plays, ungraded check-quizzes and infrequent exams for grading purposes.

North American Adaptations

Caskey (1976) contends that, except in the teaching of foreign language to adults, it is unlikely that the conditions and time factors necessary for the classic approach in Suggestopedia will be feasible. Due to successful experiments with shorter class periods and more flexibility in the sequencing of material, the suggestopedic approach has been given more promise than was originally thought possible. Class periods as short as one-half hour have been successful. Particulary with elementary school children and with hyperactive children or anxious adults, a preliminary mind calming period has been used successfully at the first part of the cycle.

Caskey has also found that it is unnecessary to carry out every phase of the seance session, particularly those involving repeating new information in rhythm with the music. Using a musical background and varying voice intonation has been found effective when not timed with the music. In addition, physical facilities do not seem to be of great importance as long as they are reasonably comfortable and there are no external noises which detract from the effectiveness of the approach.

Related Studies

This section will look at some of the studies which have been conducted to date with the suggestopedic approach. These studies cover (a) the experimental work conducted with languages to evaluate the Lozanov method in comparison with conventional teaching methods, (b) some of the research which has investigated the dependent variables of this approach, (c) research that has investigated the effect of suggestopedic training on cerebral bioelectrical activity, and (d) experimental work conducted on the elementary level in Bulgaria and research that has been conducted at the junior high and elementary levels in the United States.

Schuster (1972) reported that an experimental section of Spanish, using the Lozanov approach, learned as well as students in two regular Spanish sections in one-third of the usual time. Bordon (1976) reported a seven-to-one acceleration of learning with two Spanish classes using the Lozanov method. Smirnova (1975) reported that students at the State Pedagogical Institute in Moscow who were taught English, French and German, using the Lozanov method, learned three times the amount of vocabulary with 90% retention, as compared with control groups. Racle (1975) also reported language classes in French far exceeded previous classes taught with traditional methods. Philipov (1975) reported success with the method over traditional methods in teaching Bulgarian. Kline (1976) experimented with Lozanov techniques in a private school setting with high school age students. By the end of a five week period of studying Latin for three hours a day, Kline reported gains by the students greater than would have been achieved by conventional methods. In general, the results of these studies support the claims of Lozanov that it is possible to teach foreign languages at least three times faster than with traditional methods.

Lozanov (1977) cites that continual experimentation is taking place at the Institute at Sofia in order to determine the important variables of the method along with the physiological effects. However, little of this information has been available, particularly in English. Because of the lack of information regarding the implications of the individual elements of the Lozanov method when used in various combinations or in isolation, it is necessary to turn to the research available in the United States. Due to the work of the SALT society, a small, but growing number of studies are helping to elucidate some of the important factors in this research.

In two pilot studies, Bordon and Schuster (1976) reported that the positive effects of relaxation and suggestion in the learning of Spanish were encouraging enough to warrant further experimentation. As a result, experimentation was extended to teaching Spanish at the University as part of a regular section of beginning Spanish.

Another study by Bordon and Schuster (1976) investigated suggestion, rhythmic breathing and music. Results indicated that suggestion showed a 60% improvement over the no-suggestion condition. The synchronized breathing treatment showed a 47% improvement over the non-synchronized breathing condition and the orchestrated music condition showed a 25% improvement over the non-orchestrated presentation. The best condition, however, was the combined treatments of synchronized breathing and orchestrated music, which resulted in 78% better immediate learning than the non-synchronized and non-orchestrated presentation condition. In testing for long-range retention six weeks later, the main effect of the three independent variables was again significant (.01 level). The best results were obtained when all the variables were used in treatment and resulted in 172% better retention than when all three variables were absent.

Schuster (1975) investigated the effects of the alpha state, indirect suggestion and word association techniques on the learning of rare English words. While effective results were found with indirect suggestion and word association, the best alpha condition was when no suggestion and no association instructions were given. However, the experimenter reported that this finding was consistent with Lozanov's finding that students produced 10-15% more alpha in the passive presentation phase (without instructions to make images) than in the active phase with imagery instructions.

In Lozanov's (1971) investigations of the effect of suggestopedic training on cerebral bioelectrical activity, several factors emerged. First, the pattern usually seen for intensive mental work was absent during their sessions among the course members, while the usual pattern shows an increase of beta waves and reduction of alpha waves. Their experiments registered changes that were typical of mental work of low intensity, despite the presentation of enormous amounts of information. A second characteristic was noted at the time of the active session in a decrease of beta and theta waves and an increase in alpha. Thirdly, the concert state was characterized by the further increase of alpha and decrease of beta with theta remaining with little change.

Balevsky (1975), another experimenter in Bulgaria, investigated the brain wave changes in the process of memorization under ordinary and suggestive conditions. The data obtained indicated that efficient memorization is possible at a relatively low level of brain activity, which verifies Lozanov's experimentation.

While little information is available on the application of the Lozanov approach at an elementary school level, Lozanov (1975) states that Suggestopedia for children should be different from Suggestopedia for adults, since children have not become psychologically limited by negative and suggestive factors.

Lozanov (1975) reported on results of experimental work carried out in the 1972-73 and 1973-74 academic years at experimental and control primary schools in Sofia. While methodology is not specified, due to the favorable trends in the teaching of reading in these schools, his approach has now been extended to approximately 17 schools in Bulgaria.

After a visit to the Institute in Sofia and observation of the Lozanov experimental primary school #122 in Sofia, Cecelia Pollack (1976), who runs a school for children with learning problems in New York, reported her impressions. Pollack noted that while the Ministry of Education did not want to reach premature conclusions, a great deal of attention and support was being given to the experiment and, since the results of this school's four year experiment has been so encouraging, they were expanding its replication to include several additional schools.

American research on the elementary and junior high level has been limited, but growing numbers of researchers are adding experimental information.

At the junior high level, Gritton and Bordon (1976) experimented with the Lozanov approach to develop an Americanized approach that would be adaptable to a public classroom situation. The study was carried out at a junior high school in Iowa, with two additional schools as controls. The experimental students showed significantly higher posttest scores and the experimenters felt the method appeared to have considerable potential for improved learning.

Schuster and Vincent (1980) experimented with the method in teaching mathematics and reading to learning disabled ninth graders. Researchers reported significant improvement from pretest to posttest in both Key Math and Woodcock Reading tests. The experimenters noted that in view of the generally poor achievement in a conventional classroom, this year-end result in the use of the Suggestive-Accelerative Learning and Teaching (SALT) method was very encouraging for the learning disabled population.

Held (1976) experimented with two components of the Lozanov approach with fifth and sixth grade students. Held found, with Early Pleasant Learning Recall (EPLR) and mind calming techniques, that results were more significant in delayed recall than in immediate recall.

Prichard and Taylor (1976) used the Lozanov approach with remedial reading students at an elementary school in Georgia. Students judged two years below their reading expectancy, according to Spache oral and silent reading scores, were exposed to a 14-week program of the Lozanov method. Pretest and posttest scores were compared to the subject's ability to master the relaxation techniques. The experimenters reported large gains were achieved by students who mastered the relaxation techniques and lesser gains by those who did not. Since 30% of the children were rated "poor" in relaxation response, the authors noted that some elementary school children may not be "ready" to learn to relax deeply. It was concluded that the overall gains were significant enough to lead to optimistic prospects of adapting Lozanov-type methodology to the American public school setting.

Bancroft (1976) states that, faced with the lack of scientific data on one hand and peculiar (non-Western) terminology on the other, the North American researcher is likely to have a negative reaction to the Lozanov thesis and, therefore, to Suggestopedia. However, because of the positive reaction of Eastern Europe and the Westerners who have visited the Institute and observed the results gained, Bancroft suggests the "correct" approach to Suggestology is to determine the underlying ideas, translate these into Western terms and reconstruct the statistical evidence in accordance with the more rigorous and less ideologically oriented methods used in Western science.

Caskey (1976) also notes that while research results are sparse and some not available in English translations, there is ample evidence that the method is highly effective in a wide variety of learning and therapeutic settings. The greatest value, perhaps, will come from the modifications and applications of the method as they are now being experimented with in this country.

The limited experimental research work with learning disabled children, and the encouraging results of the limited research that has been conducted to date, suggests a need for additional research with this population. Why research work with this population has not been done in Bulgaria is not known. In discussions with Dr. Lozanov and Krassimira Pashmakova (English specialist from the Research Institute in Sofia) at the last conference in 1977, the impression was that there is no reason why this approach could not be used with these children. However, limited time and ever increasing experimental research has prevented it thus far.

METHODS AND PROCEDURES

The purpose of this study was to test the effectiveness of the Lozanov approach in the teaching of word retention to children, six to eight years of age, who have learning problems. Information in this section will cover the methods and procedures used in this experimental investigation. The research question of the study was: For six to eight-year-old learning disabled children, is there a difference in the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

Subjects

The population of this study consisted of children between the ages of six and eight years who had been referred to the Special Education Diagnostic Clinic at Kansas University Medical Center. The children referred were those who had not succeeded within their home school environment, and after alternative placement was considered within their immediate school district, they were referred to the Special Education Clinic. Referral reasons included reading and math deficits, behavioral deficits, and attention to task problems.

Random assignment of the students into two groups determined a treatment and a non-treatment group. Eight children were in the Learning Problems Classroom at the onset of the study. One child had to be eliminated because of clinic scheduling problems. The remaining seven children were assigned to a treatment or non-treatment group by the use of a table of random numbers. Four students were assigned to the treatment approach and three to the non-treatment approach. In the non-treatment group, one of these students, due to personal family problems, was unable to attend any of the experimental treatment sessions. The remaining six students, therefore, constituted the population for the study.

Instrument and Administration

Flash cards were used to facilitate the presentation of the criterion material. The criterion material consisted of vocabulary selected from the Dolch Basic Vocabulary Lists, which is used as a measure in the clinic. The Dolch Sight Vocabulary is a compilation of high frequency words found in samples of reading material from pre-primer to the sixth grade level. Harris (1975) indicated that practice on high frequency words was more relevant to remedial work than developmental teaching.

A Behavior Analysis design was employed in this study. Three pretest evaluations by the clinic teacher established the baseline measurement and determined the criterion material that was selected for presentation. This evaluation procedure provided for the elimination of all words identified by the students and substantiated the assumption that the students had no knowledge of the words used in this study prior to their presentation. Five new words from the criterion list were presented in each of the four treatment sessions for a total of twenty words. These words constituted the criterion test measure in the study. Measurement was taken during the experimental phase, at the end of the experimental phase, and a week after the conclusion of the experimental phase to evaluate immediate and long range retention.

Due to the smaller number of students receiving the traditional approach, the length of their sessions was adjusted. This allowed for the equal balance of time for exposure to the criterion material for both the treatment and traditional groups. The criterion measurement of 75% determined significance for the end of treatment (B), delayed (A), and daily acquisition evaluation. Students achieving percentages of 75% or above were considered to have attained measurements of significance in the study.

Setting

The Learning Problems Classroom is situated within the University of Kansas Medical Center complex located in Kansas City, Kansas. It is designed to provide a small student-teacher ratio and to systematically observe responses to different methods and materials. When a method is identified to which the child responds, the clinic teacher provides a prescription program. Upon the child's return to his own class, similar lesson plans continue to be implemented. Evaluation procedures occur every twenty days and after completing an evaluation the student is returned to his home classroom or retained at the Learning Problems Classroom.

The daily program consists of class sessions from 9:00 a.m. to 2:00 p.m. Monday through Thursday, with the child returning to his original classroom on Friday. Materials similar to the home classroom are used, as well as a supplement of material available within the Learning Problems Classroom. The use of books, worksheets and other materials from the classroom helps facilitate the transition on Fridays to the regular classroom as well as the child's return. In addition to the special classroom teacher, a multidisciplinary team consisting of special educators, child psychiatrists, clinical psychologists, audiologists and speech pathologists is also available within the medical complex. This provides for a multidisciplined program featuring the skills and expertise of many professions.

Procedure

The goal of this investigation was to examine the use of the Lozanov approach in teaching word retention to children who have learning problems. Discussion will cover objectives emphasized in this study, the suggestopedic cycle used, the specific procedure used in implementing the suggestopedic cycle for the treatment group, and the procedures followed in the presentation of material for the contrast students.

Two objectives of the Lozanov approach were emphasized in this study. These consisted of: (a) attempting to create a relaxed, non-defensive atmosphere in which both external and internal distractions to learning were minimized, and (b) presenting lesson matter in both attentive and non-attentive states. The rationale was that the creating of relaxed atmosphere reduced the anxiety blocks often occurring in the learning situation, particularly with children who have learning problems. It was also reasoned that the presentation of material on different awareness levels would contribute to greater learning and retention.

The suggestopedic cycle, described in detail earlier and developed by Lozanov to accomplish these objectives, is referred to as the classical cycle. It was developed specifically for language training for adults and university age students. Dr. Lozanov, to date, has not specified how this cycle has been adapted for various subjects and age groups, although experimental work has been conducted in elementary level schools and with various subject matter in Bulgaria. The information that is available on the adaptation of the cycle for various subject matter and age groups has been provided by the experimental work of researchers in this country. The procedure adopted for this study drew from the experimental works of Held (1976), Prichard and Taylor (1976), and Schuster, Bordon and Gritton (1976).

This study used the suggestopedic cycle described by Schuster, Bordon and Gritton, which consisted of: (a) preliminary preparations, (b) presentation of material, and (c) practice of material. In the presentation phase, the teacher attempts to create a positive, relaxed learning atmosphere. Students are prepared by using various physical relaxing and mental mind calming exercises. The presentation phase consists of two parts, active and passive. The active part consists of review of previously presented material and presentation of new material with active participation of the students. In the passive stage, the new material is presented with a background of specifically selected music. In this second passive stage, students are directed to a relaxed, passive state as if they were attending a music concert. The practice phase can take the form of plays, games, reading of the material, or testing of the presented material.

Due to the clinic classroom schedule, only two days a week were available for the treatment procedure; therefore, the suggestopedic cycle adopted for this study consisted of four 40-minute treatment sessions, held on alternating days, over a period of two weeks. This study employed the previously described suggestopedic cycle sequence in the following manner for the treatment group.

Treatment Group Sequence

Held (1976) reported that the use of mind calming, imagery techniques and positive suggestion during the preparation period seemed effective in breaking down inhibitions, fears, and avoidance techniques exhibited by many disabled readers. Because of the high anxiety level that is often found in children with learning disabilities, this study employed two preparation pre-treatment sessions to acquaint the student with the physical relaxation and mind calming techniques. The physical relaxation technique involved suggestions for progressive relaxation by body parts. The mind calming technique employed visual imagery by the use of a "white cloud" exercise.

After these two pre-treatment preparation sessions, only the first five-minute portion of the 40-minute session was used for the preparation phase. Positive suggestions for general academic excellence were given during this phase.

The active presentation of the new material was implemented for a time period of ten minutes. Words were presented visually on flash cards and each was pronounced orally, spelled, and used in a sentence. Each student was given a card with the word at the time of presentation. Prichard and Taylor (1976) found the combination of contextual and kinesthetic methods helpful in the presentation of new vocabulary to remedial reading students. In order to employ the kinesthetic method, the words were spelled and the student traced the letters of the words with his fingers. Except on the third presentation, this procedure was followed as each word was presented three times. On the third presentation, instead of tracing the letters on the flashcard, the student was instructed to close his eyes and write it on his "mental magic blackboard". The use of the "mental magic blackboard" was used to encourage the visual imagery abilities often found lacking in the case of reading disabilities. Harris and Sipay (1975) note the problem of recall of words in disabled readers. They felt that it was not the problem of poor memory, but failure to develop a mental image of the word which could be recalled at a later time.

After the first session, a short review of the previously presented material was employed in this presentation phase. This took the form of the students finding the word in the written sentence as it was pronounced. The sentences with the presented word were on a chart board on a small easel. After this short review, the cycle sequence was followed as described.

The passive session followed immediately for ten minutes. During this phase, the students lay on the floor, closed their eyes and were instructed to relax and listen to the music. To induce the relaxed state of the preparation phase, it was suggested that the students feel as if they were floating on their "white cloud" and had the warm, relaxed bodily feeling they experienced during that exercise. If they listened to the words, it was suggested that they visualize the words on their "magic blackboard". In the passive phase, only an auditory stimulus was used. The words were repeated three times, spelled, and used in a sentence. Following the Lozanov pattern, intonation was employed in this presentation. Declarative, normal and soft tones were used alternatively. Lozanov (1975) refers to this passive part as the pseudo-concert session and indicates that it facilitates increased memory and retention. Caskey (1976) cited several music selections that had been successfully used for the passive session. The study employed one of these suggested selections from the works of the composer Grieg. Positive suggestion concerning remembering the new words and general academic excellence was given at the end of this phase.

A practice session followed the passive session. The study employed games as a practice exercise, using the cards that were used in the presentation phase. A variety of games were used during this period to eliminate boredom and stimulate interest. The practice phase completed the suggestopedic cycle implemented in the study. This cycle was repeated, as described, for four treatment sessions.

To evaluate immediate and long range retention, evaluation was obtained during the experimental phase, at the end of the experimental phase, and a week following the end of the experimental phase. The students were tested using the flashcards that were used during the learning sessions. The clinic teacher implemented the final testing procedure and included this testing with other evaluations she was currently conducting.

Contrast Sequence

Similar to the treatment group, the comparison students were given three pretest evaluations, eliminating known words to determine the criterion material and establishing a baseline measurement. During treatment, none of the mind calming or imagery techniques were used. As the passive session was not employed, no music was used. Traditional techniques were employed. Words were presented visually on flash cards. Each word was pronounced orally, spelled and used in a sentence and each was presented three times in the previously described manner. The tactile method of tracing the words was employed, but not the use of the "mental magic blackboard". As in the treatment group, games were used to allow for practice and repetition of the words in a fun activity. Evaluation was obtained during the experimental phase, at the end of the experimental phase and a week following the last teaching session to check for retention.

Statistical Analysis

A Behavior Analysis (ABA) design was employed in the study. Herson and Barlow (1976) list two problems in the use of this design.

First, the paradigm ends on the A or baseline phase, thereby denying the subject full benefits of experimental treatment, and secondly, the problem of multiple treatment interference and sequential confounding. In this study, it is also recognized that repeated extended measurement was limited due to the clinic schedule.

While the objective of this experiment was to test the effectiveness of certain elements of the Lozanov approach, more than one variable had to be manipulated across the experimental phase. A composite treatment approach needed to be examined for its implementation ability as an approach that could be used with children who have learning problems. Herson and Barlow (1976) also note that while this procedure cannot allow for conclusions as the contribution of each treatment component, it can imply such interaction and provide the background for further experimentation. Also, they point out that before considering large group approaches, it is best to develop a superior procedure and determine conditions under which it is effective or ineffective.

The Behavior Analysis (ABA) design helps elucidate problems found in group designs, such as averaging, generality of findings and inter-subject variability. Bergin and Strupp (1972) argue that one of the major problems in group designs is generalizing from the average response of a heterogeneous group to a particular individual. In research among heterogeneous subjects, one is searching for answers to the question, "What specific treatment is effective with a specific type of sub ject under what circumstances?" Lazarus and Davidson (1971) indicate that the ABA design allows for analysis of effects of variables, thus permitting scientifically valid conclusions and providing for data that can be used as a departure for subsequent investigations.

RESULTS AND DISCUSSION

The purpose of this study was to test the effectiveness of the Lozanov approach in teaching word retention to children, six to eight years of age, who have learning problems. The specific objectives of the study were to investigate the effects of the following independent variables on word retention: (a) the treatment combination of mind calming, (b) imagery and non-attentive learning versus the traditional approach in relation to sex, (c) reading level, (d) age, and (e) relaxation response. The criteria or dependent variables were the number of words correctly remembered from a list of twenty words as tested immediately after learning, at the end of the four session experimental phase, and eight days after the conclusion of the experimental phase for delayed retention. A dependent measure was obtained for each of the four experimental sessions, at the end of the experimental phase anu eight days following the experimental phase, for a total of six criterion measures.

The research question for the study was: For six to eight-year-old learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words? A Behavior Analysis (ABA) design was used as a research tool to evaluate the results. The presentation format for data is as follows: the important variables of sex, reading level, age, and relaxation response of the treatment subjects and sex, reading level and age of students in the contrast group are presented in Table 1. The characteristics and results are presented for each student individually, followed by averages (ave.) and standard deviations (S.D.) per group. Due to random assignment to groups, the groups appeared at least roughly comparable on the above variables. Subjects in the experimental group were older than the control subjects, but not significantly so ($p > .05$). The relaxation response evaluation was determined on the following criterion: E= excellent (eyes closed, no body movement), G= good (eyes closed, minimal body movement), and P= poor (eyes open or closed, frequent body movement). The students ranged from six to eight years of age, included upper and lower reading levels (U= upper and L= lower) and both sexes. An averaged good response relaxation was attained by three of the students in the treatment group.

Table 1 - Background data on subjects (N = 5) by treatment group

Subject No.	Sex	Age	Reading Ability	Relaxation Response
Experimental Group				
1	M	8	Lower	Good
2	M	8	Lower	Good
3	F	7	Upper	Good
Ave.		7.67		
S.D.		0.47		
Control Group				
4	F	7	Upper	
5	F	6	Upper	
Ave.		6.50		
S.D.		0.50		
t		2.05		

Although the experimental treatment was expected to increase word retention, its nature is considered exploratory and speculative. Therefore, a Behavior Analysis (ABA) design was employed to determine conditions under which it is effective or ineffective and which independent variables contributed to its effectiveness or ineffectiveness. This design was employed to help overcome the problem often present in group design approaches attempting to generalize from the average response of a heterogeneous group to a particular individual. Because children with learning problems represent such a heterogeneous population, employment of this design was used to elucidate the question, "What specific treatment is effective with a specific subject under what circumstances?"

The study called for three pretest evaluations by the clinic teacher to establish the baseline measurement (A) and determine the criterion material that was selected for presentation. This evaluation procedure provided for the elimination of all words identified by the students and substantiated the assumption that the students had no knowledge of the words used in the study prior to their presentation. In each treatment phase, five words from the criterion list of twenty were presented and tested at the end of each session. At the end of the four treatment sessions, a cumulative measurement (B) was taken of the words which constituted the criterion material. Eight days following the last experimental session, a delayed measure (A) was again conducted by the clinic teacher.

Treatment Student Results

Information concerning the students in the treatment group is presented individually in Table 2 as follows: pretest baseline information on the criterion, daily learning results and final test criterion results. Following the tabled individual results, the average and standard deviation for each group are given according to the ABA format, concluding with Student's *t* -test for mean differences between the groups.

Clinical background data on the individual subjects are given next. Student 1 in the treatment group was a male subject, eight years of age, in the lower reading level with a good relaxation response. This student had been referred to the clinic because of reading and math deficits and a disruptive behavior pattern. Reports indicated an early stuttering problem that had been corrected. Previous testing results indicated a fluctuating profile on auditory and visual memory tests and poor visual motor skills. Student 2 in the treatment group was a male student, eight years of age, in the lower reading level, with a good relaxation response. This student had been referred to the clinic because of a severe reading problem. Reports indicated that this student believed he could not read upon admission to the Learning Problems Classroom. A history of psychological and physiological problems associated with the school experi-

Table 2 - Baseline, daily quiz and final test scores for subjects by treatment group

Subject Number	Baseline	Daily Quiz 1	2	3	4	Final Test Acq.	Ret.
Experimental Group							
1	0	100	80	100	100	90	85
2	0	100	80	80	80	85	85
3	0	80	80	100	80	80	80
Ave.	0	93	80	93	87	85	83
S.D.	0	9	0	9	9	4	2
Control Group							
4	0	80	80	60	100	70	65
5	0	60	80	100	60	60	(60)[1]
Ave.	0	70	80	80	80	65	63
S.D.	0	10	0	20	20	5	3
t		2.35	[illegible]	[illegible]	[illegible]	1.79*	7.12**

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* p < .05; ** p < .01

[1] Missing datum conservatively estimated

ence and the use of avoidance techniques during the school experience was noted. Right to left vision was reported, abnormal and emotional outbursts and frustration were also noted. Student 3 in the treatment group was a female student, seven years of age, in the upper reading level with a good relaxation response. This student had been referred to the clinic for expressive language problems. Evaluation revealed severe expressive language problems, a fluctuating profile of receptive language and auditory discrimination problems. Reports indicated that auditory memory did not appear to be a problem, but further evaluation was requested. Hearing sensitivity evaluations revealed pure tone threshholds within normal limits bilaterally, which correlated well with speech reception threshholds. Reports also indicated a problem of distractibility, and graphically, reversals were noted. Initially, an additional subject in the treatment group was a female student, seven years of age, in the lower reading level with a poor relaxation response. This student was referred to the clinic for reading and math deficits. Reports revealed poor visual perception skills resulting in frequent reversals when writing numbers and letter. Poor self-confidence and difficulty in fine motor skills were noted. This student was not present during two of the four treatment sessions, and her data were excluded; with only two of four experimental sessions, she was neither fish nor fowl.

Contrast Student Results

Information concerning the students given the traditional approach is also presented individually in Table 2 as before. Student 4 who received the traditional treatment was female, seven years of age, and in the upper reading level. This student had been referred for reading and math deficits, problems in visual and auditory discrimination, articulation problems, short-term memory deficits, reversals, poor perceptual motor development, and high distractibility. Testing revealed visual acuity as normal, and pure tone and speech discrimination within normal limits bilaterally. Student 5 receiving the traditional treatment was female, six years old, in the upper reading level. This student had been referred for academic difficulties as well as fine and gross motor deficits. Reports revealed significant delays in fine and gross motor skills, poor directionality, visual memory, form discrimination and sensory integration problems. Auditory perception was reported as satisfactory. This student was not present for the delayed retention measurement (see Table 2). The retention scores for the other students remained the same as their acquisition scores or dropped slightly. Mindful of the experimental hypothesis, her retention score was conservatively estimated as having stayed the same as her acquisition score.

Summary of Results

The research question explored in this study was: For six to eight-year-old learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating learning and retention of unknown words?

Improved scores (75% or more improvement) on daily, end of learning and delayed evaluations were attained by all but one of the students given the Lozanov treatment approach. The one student who did not achieve practical significance in any of the evaluations was present for only two of the four treatment sessions and was unable to achieve a good relaxation response. While the students given the traditional treatment were able to achieve two to three score improvements on the daily evaluations, end of learning and delayed measurement significance were not achieved (75% or more improvement).

Examination of trends for the other relevant variables revealed that the older students, eight years of age, attained the best end of treatment and delayed retention measurements. The males in this study had the greatest gains for the end of treatment and delayed evaluations. The students with good relaxation responses achieved the best in-course, end of treatment and delayed evaluations.

Two statistical tests were used to supplement the 75% improvement criterion of practical significance for the ABA data. (See the bottom line in Table 2.) The experimental students had both a significantly higher average end of learning (acquisition) criterion test score than the controls in the contrast group, and a higher delayed measurement (retention) criterion test score.

SUMMARY AND RECOMMENDATIONS

Summary of the Study

The purpose of the current study was to test the effectiveness of the Lozanov approach in teaching word retention to children, six to eight years of age, who have learning problems. Objectives of the study were to investigate the effects of the following variables: (a) the treatment combination of mind calming, imagery and non-attentive learning, (b) sex, (c) reading level, (d) age, and (e) relaxation response in relation to a traditional approach. The research question for the study was: For six to eight-year-old learning disabled children, is there a difference between the effectiveness of the Lozanov approach versus the traditional approach in facilitating retention of unknown words?

The population of the study consisted of children between the ages of six and eight who were in the Learning Problems Classroom at the Kansas University Medical Center. The students were assigned to a treatment or non-treatment approach by the use of a table of random numbers.

The dependent variable consisted of twenty words from the Dolch Vocabulary Word Lists, which were selected in three pretest evaluations by the clinic teacher. Five of these words were taught in each of four sessions in the treatment and traditional approaches.

Two objectives of the Lozanov approach were emphasized in this study: (a) attempting to create a relaxed learning atmosphere in which external and internal distractions to learning are minimized, and (b) presenting lesson material in both attentive and non-attentive states, thereby reaching different awareness levels that reportedly contribute to greater learning and retention.

The students instructed using the Lozanov approach were given two pre-treatment sessions to acquaint them with the relaxation and mind calming techniques. Forty-minute treatment sessions for these students consisted of a preparation phase, a two-part presentation phase and a practice phase. The preparation phase employed a short relaxation and mind calming exercise. In the active part of the presentation phase, the new words were presented on flashcards, and imagery and kinesthetic techniques were employed. In the passive session, the words were again presented with intonation as the students relaxed to a specifically selected musical background. The practice sessions consisted of the use of the words in the format of a variety of games.

The traditional approach consisted of a presentation and a practice phase. The students assigned to this approach were not given any relaxation or mind calming exercises. In the presentation phase, the material was presented as for the treatment group, but imagery techniques were not used. Since a passive session was not used, no music was employed. As in the treatment groups, games were used to allow for practice and repetition of the words in a fun activity.

Evaluation of the criterion material for both approaches was conducted during the experimental phase, at the end of the experimental phase, and a week following the last teaching session to check immediate and delayed retention. A total of six criterion measurements were taken and evaluated.

A Behavior Analysis (ABA) design was used as a research tool to evaluate the results. Three pretest evaluations by the clinic teacher established the baseline (A) measurement and determined the criterion material that was presented. The criterion measurement of 75% determined significance for the end of treatment (B), delayed (A) and daily acquisition evaluation. The results of the research finding were summarized and discussed.

Limitations

Limitations of this study revolved around *in situ* circumstances at the Medical Center, some of which required adjustment. These limitations involved the number of students available for the study and the failure of some of these to receive full treatment and measurement. The limitations were also influenced by the requirement of having alternating, rather than consecutive, days for the treatment sessions, lack of extended delayed retention measurement and lack of more extended experimentation to check the results of the approach over time. In addition, with the use of the Behavior Analysis (ABA) design, the study ended on the A or baseline phase, but the initial learning in this experimental procedure will not disappear with return to baseline.

Conclusions

The results of the study indicate that for students who can attain a good relaxation response, the Lozanov approach was more effective for achieving significant in-course, cumulative and delayed measurement evaluations than the controls. While the contrast students achieved two or three significant practical in-course measurements, this was not reflected in their end of treatment or delayed retention evaluations. The experimental students also had significantly ($p < .05$) higher average acquisition and retention scores than did the controls.

An examination of the other independent variables in relation to the population of this study reveals that males, who were the oldest students (eight years old), attained the best end of treatment and delayed retention measurements. Students with the lowest reading levels, who were exposed to all four treatment sessions, achieved better end of treatment and delayed evaluations with the Lozanov approach. The students with good relaxation responses achieved the best in-course, end of treatment and delayed evaluations.

Educational Significance and Implications

Although the current study is not without limitations, it does represent encouraging indications that the Lozanov approach can be implemented with young children who have learning disabilities. While most of the individual elements of the approach are known to Western disciplines, many have either been ignored or not applied to the field of education. The uniqueness of the approach is that Lozanov brought them together in a unified, holistic functional methodology that can be implemented in the educational field.

Several aspects of the approach have important implications for education in general, and for the field of learning disabilities in particular. Some of these include the importance of relaxation in the learning process, the suggestive influence of the arts and the recognition of the importance of the role of unconscious mental processes.

In the field of learning disabilities, the negative effects of anxiety is widely recognized. If anxiety is viewed as an emotional state that blocks learning, then more relaxed states of learning would be of benefit. An important emphasis of the Lozanov approach aims at accelerating learning through various means of suggestion under favorable conditions of physical and mental relaxation. While relaxation has an extensive history in medicine, psychology and psychiatry, its application has been limited in education. Although a student's state of mind is seen as an important variable in how well he performs, how to achieve an appropriate state of mind is seldom taught. Most of the research in the use of relaxation techniques with children who have learning problems has been directed primarily toward behavioral improvement. The important emphasis of its use in the suggestopedic approach is directed toward accelerated learning and its psychophysiological benefits.

A second implication is the suggestive influence of the use of the arts, music in particular, that is employed in the approach. While

Lozanov does not contend that music alone provides for greater memorization, its use to enhance the learning atmosphere and provide for the rhythmic presentation of material is important for accelerated learning. The selection of music appears important because of its physiological effects that are reflected in brain waves. Hans Berger, developer of the electroencephalograph, discovered during his research that music can greatly affect brain waves. It is theorized, therefore, that music can be used to affect states of consciousness by acting at a physiological level. Other researchers, building on Berger's work, found that by using specifically selected music, one could alter mood and behavior. The behavioral state of relaxed wakefulness is usually identified with the alpha activity (although theta and delta are also associated with deep relaxation levels) and implies that the brain state is receptive and not engaged in any specific mental or emotional activity. Research reports indicate that a minimum of alpha, or none at all, is often present with anxiety. Experiments conducted at the Institute in Bulgaria reported an increase in alpha activity, especially during the concert session. It was also observed that pulse rates slowed down and that blood pressure decreased during this part of the session. Therefore, because of its physiological and psychological effects, music appears important in the learning process by acting as a medium to activate the unconscious.

One of the most important implications of the approach is its recognition of the role of unconscious mental processes. While recognition of the importance of unconscious mental processes is slowly emerging in the educational field, neuroscience and psychology are demonstrating that behavior is influenced by internal states and verifying the important influence of mind and body interaction. In learning disabilities, educators are confronted with the problem of how to deal with poor self-concepts. Often negative emotional states, such as anxiety, cause the child to adopt defense mechanisms that result in altering beliefs and feelings which often continue long after the disorder is overcome. When a child's disability is not recognized and helped early, the belief system or self-concept that has been established by the student has become so entrenched that it has to be dealt with before remediation can effectively be initiated.

Lozanov theorizes that belief systems are formed from suggestive factors received on unconscious levels from the environment and within the communication process. Negative self-concepts prevent us from reaching the greater capabilities that are within all of us. Through the use of suggestion which utilizes these unconscious mental processes, barriers that prevent us from accepting positive suggestion are overcome and new attitudes, awareness and abilities are allowed to emerge.

Recognition of these unconscious processes has a significant importance for education. It calls for new methodologies and approaches that deal with the phenomena of consciousness. It calls for seeking answers in new dimensions and exploring the relation between learning and different modes of consciousness. The Lozanov approach brings attention to, and provides a methodology base that allows for, explorations of these new dimensions. While this methodology is in its infancy in this country, documentation is slowly emerging. Because of the limited research reported to date in the experimentation of the approach with young children who have learning disabilities, this study provides research in ascertaining how this methodology can be implemented with this population.

Recommendations for Further Research

1. Studies with better designs are recommended to investigate which specific elements are most effective with this population.
2. Further research is needed to determine the effect of the approach over time.
3. Research is needed to determine the most effective way to implement the approach with this population.
4. Research is needed to determine if there are limits to the effectiveness of the approach.
5. Several replications with small numbers of children or one using a larger number of subjects is needed to verify the generality of the results obtained in the current study.

Note

This work is a revision of a thesis at the University of Kansas in partial fulfillment of the requirements for the degree of Master of Science in Education, October, 1978.

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Une expérimentation de la méthode de Losanov dans l'enseignement de la capacité à retenir le vocabulaire chez les enfants présentant des difficultés d'apprentissage

Dans cette étude est testée l'efficacité de l'approche de Lozanov dans l'enseignement du vocabulaire aux enfants âges de 6 à 8 ans ayant des problèmes d'apprentissage. Trois enfants adressés à la clinique de diagnostic des incapacités d'apprentissage au Centre Médical de l'Université du Kansas ont été soumis au hasard au traitement expérimental de Losanov et deux autres enfants ont été soumis au traitement de contrôle. Tous les enfants avaient séro comme critère de base initial. Tous les élèves du groupe expérimental testés quotidiennement et à la fin de leur période d'apprentissage ont été classés dans les 75% ou plus, alors que les élèves du groupe de contrôle, enseignés d'une manière traditionnelle avec quelques tests quotidiens et pas de tests finals, n'ont pas atteint ce critère. De plus, l'acquisition moyenne et les scores sur les tests de rétention du groupe expérimental ont été notablement plus élevés que ceux du groupe de contrôle. On en a donc conclu que l'approche de Lozanov était meilleure que l'approche traditionnelle avec des élèves présentant des difficultés d'apprentissage. On a noté et commenté l'influence d'autres variables.

Experimentieren mit der Lozanov Methode im Lehren von Wortretention an Kindern mit Lernhindernissen.

Diese Untersuchung prüfte die Wirksamkeit der Lozanov Methode im Lehren von Wortretention an Kindern zwischen sechs und acht Jahren mit Lernhindernissen. Drei Kinder, die an die Spezielle Ausbildung Diagnostische Klinik an der Medizinschule der Kansas Universität überwiesen wurden, wurden zufällig der experimentellen Lozanov Behandlung und zwei ähnliche Schüler der Kontrollbehandlung zugewiesen. Alle experimentellen Schüler hatten eine tägliche Punktzahl im Quiz und Schlußexamen von 75% oder mehr, doch die Kontrollschüler, die traditionell gelehrt wurden, hatten einige tägliche Quizpunktzahle aber keine Schlußprüfungszahl, die diesen Kriterium treffen. Außerdem waren die durchschnittliche Erwerbungs- und Retentionsexamenpunktzahl bedeutend größer als diejenigen der Kontrollgruppe. Daraus folgte der Schluß, daß die Lozanov Methode mit lernbehinderten Schülern besser war als die traditionelle. Der Einfluß der anderen Variabeln wurde notiert und kommentiert.

Experimentación con el método de Lozanov en el entrenamiento de habilidad de retención de palabras a niños con inhabilidades de aprender. - Este estudio probó la eficacia del acceso de Lozanov en el entrenamiento de retención de palabras a niños de 6-8 años de edad con problemas del aprender. Tres niños referidos a la clínica diagnóstica de educación especial del centro médico de la Universidad de Kansas se asignaron al azar al tratamiento experimental de Lozanov y dos otros estudiantes semejantes se asignaron al tratamiento de control. Todos los estudiantes tuvieron cuentas initiales de criterios de cero. Todos los estudiantes experimentales ganaron cuentas de 75% o mas en los examenes cotidianos y las pruebas finales, pero los estudiantes de control enseñados tradicionalmente ganaron unas cuentas cotidianas, pero no cuentas finales, que hallaron este criterio. Además, las cuentas médias de adquisición y retención del grupo experimental se elevaron significantemente ($p < .05$) mas que las del grupo de control. Así se concluyó que el acceso de Lozanov con estudiantes de inhabilidades del aprender fue un acceso mejor que el tradicional. La influencia de otros variables se notaron y anotaron.

Erratum

This is the time to give credit where credit is due. The original version of the SALT Teacher's Checklist (JSALT 4(1)) was developed by Charles E. Gritton. No name was on the original checklist. After several tryouts and revisions also without names attached I decided that the checklist was worthy of publication - and forgot the originator. So I am pleased to offer this correction and list Charles E. Gritton as co-author.. Don Schuster.

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ABSTRACT

The basic focus on this journal, which publishes a wide variety of articles on suggestive and accelerative learning, is Suggestopedia theory, research, and application. Articles in the volume presented here include: "The Effects of Superlearning on Retention/Hypermnesia of Rare English Words in College Students" (Lynn D. Anderson); "SALT in Africa: Unity in Diversity through Communication" (Frikki Van Kraayenburg); "An Accelerated Learning Magnet School: Attracting Teachers and Administrators" (Stephanie Merritt); "Vital Components for Effective Teacher Training" (Twyla S. Moschel); "Eurythmy: Art of Movement in the Waldorf Schools" (Earl J. Ogletree); "Teaching Adult Learners Using Accelerated Learning" (Elaine Voci-Reed); "Music as Mnemonic Device in Second Language Learning" (Linda Dejin Xia, Loren Alexander); "Music and Accelerative Learning: Some Historic and Current Applications" (Patrick S. Brislan); "Students' Attitudes Towards the Use of Music and Mind-Calming in their High School Language Class" (Uschi Felix); "Relaxation and Imagination Imagery" (Connie R. Hull, Gary F. Render, Charles E. Moon); "Japanese Language and SALT" (Hideo Seki); and "Dual-Plane Awareness Techniques Other Than Lozanov's for Accelerating and Enriching Teaching and Learning" (Win Wenger). (MSE)

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THE JOURNAL OF THE SOCIETY FOR ACCELERATIVE LEARNING AND TEACHING

Guidelines for Contributors

The Editor welcomes submission of manuscripts on an interdisciplinary nature relevant to all aspects of suggestive learning-teaching-therapy counseling within the theoretical and procedural confines of Suggestology and/or Suggestopedia. The JOURNAL FOR THE SOCIETY OF ACCELERATIVE LEARNING AND TEACHING will publish a wide variety of articles - including critical reviews, theoretical analyses, speculative papers, case studies, quasi-experimental studies, as well as reports of empirical research (basic or applied) of major significance. The basic focus is Suggestopedia theory , research and application.

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The Effects of Superlearning on Retention/Hypermnesia of Rare English Words in College Students

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and
Gary Render
University of Wyoming

Abstract. The purpose of this study was to determine if the Superlearning method, as defined by Ostrander and Schroeder, would produce hypermnesia in learning rare English words. The subjects were 189 sophomore and junior education majors. Subjects were randomly assigned by class section to either the control group or to one of four treatment groups. All groups received pre- and posttests. The control group, which consisted of two class sections, learned the words by using any method of their own choosing. They were tested for retention after one, two, and four weeks. One treatment group, also comprised of two class sections was tested one, two, and four weeks after treatment. Each of the other treatment groups was tested only once at one, two, or four weeks after treatment. The same matching test was used as a pre-, post-, and retention test. Subjects were not told their scores on any of the tests. An analysis of covariance, which removed the effects of the acquisition scores, showed that the control group performed significantly ($p < .05$) better, on all of the retention tests than any of the treatment groups. Reasons for these results are offered and recommendations are proposed.

* * *

Introduction

Georgi Lozanov studied the phenomenal memory capacities of certain yogis. Each member of the Stotraya sect of the Brahmins memorizes all of the sacred text, so that if the text was destroyed and only one member of the sect survived, the entire sacred text could be reproduced. "Capacities of this kind, inherent to the individual, were concealed from the masses behind the veil of mysticism and the latter were deprived of them" (Lozanov, 1973, p. 73). In developing Suggestology, Lozanov sought to make these "reserves" available to everyone. Lozanov called this enhanced memory "hypermnesia" and claimed that the production of hypermnesia depends upon suggestion (Lozanov, 1978). Several aspects of Lozanov's method, also called Superlearning, utilize suggestion.

Clinical psychologists have defined hypermnesia as an increase in retention over time, and have conducted studies investigating the conditions which produce hypermnesia. It was found that hypermnesia occurred over repeated trials (Erdelyi & Becker, 1974; Roediger & Payne, 1982; Roediger & Thorpe, 1978), and that the depth of processing influenced hypermnesia (Belmore, 1981; Erdelyi, Buschke & Finkelstein, 1977; Erdelyi & Stein, 1981).

Philipov (1978) used Lozanov's method to teach a beginning course in the Bulgarian language and found 91% average retention of learned material. This level of recall was considered to demonstrate hypermnesia. The treatment group performed significantly better ($p < .02$) than a control group, even though the treatment group spent only one third of the time in class that the control group had spent.

Method

For the purposes of this study, hypermnesia was defined in two ways. Both the clinical definition, that hypermnesia is an increase in retention over time, and Lozanov's definition of hypermnesia as enhanced memory were used. Ninety percent of the posttest score was applied as the reference criterion for enhanced memory. In order to satisfy this definition, groups were required to maintain the criterion score across all tests. Both definitions were used to analyze the data.

This study was conducted to determine if the Superlearning method, as outlined by Ostrander and Schroeder, would produce hypermnesia under either of two testing conditions. One group was tested for retention once after treatment, while the other group received repeated testing, i.e., three tests. A control group received no Superlearning treatment, but was tested at all three intervals, one, two, and four weeks.

Seven sections of the undergraduate course, Foundations of Learning, at the University of Wyoming, were used in this study. The course is required for all education majors, and most students are sophomores or juniors. Subjects were randomly assigned by section to either a treatment or control condition.

The following procedure was used with the treatment classes.

1) Each participant received a sheet explaining the series of steps to be followed.
2) A pretest was administered to provide a baseline score. The pretest consisted of 25 rare English words which were to be matched to their definitions. This same test was used as a pretest, a

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posttest, and as the retention test, each test administration lasted approximately five minutes. Pretests were collected by the experimenter.

3) A list of the 25 words and their definitions was distributed to subjects. The researcher read the words and definitions aloud to subjects, during a two minute period. Subjects studied the words and definitions for two additional minutes. Lists were then collected.
4) A tape was played to relax subjects' minds and bodies. The tape suggested that learning would be easy. This tape played for twenty minutes.
5) A tape prepared by the researcher was played. This tape presented the words and their definitions using voice intonation, sequentially, normal, loud, and soft tones. Baroque music, with a 4/4 beat and 60 beats per minutes was selected to provide the background. Each word and its definition was given during a four second (four beat) period. A four second pause followed each word/definition. Subjects were instructed to breathe rhythmically, i.e., to hold their breath while information was being given, and to alternately inhale or exhale during pauses.
6) Immediately following the treatment, a posttest was given.
7) Subjects were tested, by class section, for retention, at one, two, and four week intervals. One section was tested at one week only, one section at two weeks, and one section at four weeks. Two class sections were tested at all three of these intervals. Subjects were not told any of their test scores, nor were they informed of which items they missed on any of the tests.

The procedure used with the control class consisted of the following:

1) Subjects were given a handout describing the procedure to be followed.
2) The pretest was administered to provide a baseline score. This took approximately five minutes.
3) The list of words and matching definitions was distributed to students. The experimenter read the list to students, during a two-minute period.
4) Students were given twenty minutes (a time period equivalent to the relaxation tape used with the treatment group) to learn the words and definitions using any strategy they chose.
5) After twenty minutes, the lists were collected and the posttest was administered.
6) The control group was tested for retention at one, two, and four week intervals. Subjects were not informed of any of their test scores, nor of which items they missed on any of the tests.

Results and Discussion

A one-way analysis of variance was used to determine if there were any significant differences between classes. See Table I. Post hoc pairwise comparisons were performed using Tukey's test. It was found that the control class performed significantly ($p < .05$) better on the posttest, one week retention test, two week retention test, and the four week retention test, than any other group.

An analysis of covariance was then performed on the data to remove the effect of the acquisition score on the retention test scores. The control class scores were still significantly ($p < .05$) higher than the scores of the other groups on all tests of retention (Table II).

Table I: Means and Standard Deviations of Test Scores by Class and Retention Testing Intervals

Class	N	Pre	SD	Post	SD	Week 1	SD	Week 2	SD	Week 4	SD
1(Control)	54	.81	1.78	24.17*	2.02	22.85*	3.75	22.23*	4.25	18.32*	6.86
2(Treatment)	56	.20	.86	19.11	5.95	14.56	6.70	13.23	7.54	12.59	7.85
3(Treatment)	23	.13	.46	20.00	4.09	15.09	5.66				
4(Treatment)	26	.19	.63	19.40	6.20			12.86	7.91		
5(Treatment)	20	.80	1.30	19.60	5.68					9.16	5.27

*p < .05

Table II. Differences between Groups on Retention Tests

Week 1

Source	*SS*	*DF*	*MS*	*F*
Covariate Posttest	3015.3	1	3015.3	304.9*
Main Effect Class	179.7	2	89.8	9.1*
Explained	3195.0	3	1065.0	107.7*
Residual	929.7	92	9.9	
Total	4124.6	97	42.5	

Week 2

Source	*SS*	*DF*	*MS*	*F*
Covariate Posttest	3663.9	1	3663.9	194.1*
Main Effect Class	221.2	2	110.6	5.9**
Explained	3885.1	3	1295.0	68.6*
Residual	1604.4	85	18.9	
Total	5489.5	88	62.4	

Week 3

Source	*SS*	*DF*	*MS*	*F*
Covariate Posttest	3197.1	1	3197.1	109.4*
Main Effect Class	555.6	2	277.8	9.4*
Explained	3752.7	3	1250.9	42.8*
Residual	3213.3	110	9.2	
Total	6966.0	113	61.6	

* $p < .01$, ** $p < .001$

Table II shows the results of the analysis of covariance. At week one, there was a significant main effect for class ($p < .001$). Significant main effects for class were also found at weeks two and four ($p < .004$ and $p < .001$ respectively). The analysis of covariance showed that the control group scores were still significantly higher than the scores of any of the treatment groups.

A decline in test scores over time was found in all treatment conditions. The data did not support the first definition of hypermnesia (increase in retention over time). The scores pertaining to the second definition of hypermnesia (enhanced recall) for each group are presented in Table III. None of the treatment groups showed enhanced recall at any interval. Additionally, the control group failed to show consistent enhanced recall on all retention tests. Therefore, hypermnesia was not demonstrated in any condition.

Table III: Mean Retention Scores

Group	*N*	*Week 1*	*Week 2*	*Week 4*
Control	54	94.5%	92.5%	75.8%
Treatment	56	76.2%	69.2%	65.9%
Treatment	23	75.5%		
Treatment	26		66.3%	
Treatment	20			46.7%

Note: Table entries are percentages of posttest scores.

Repeated testing in the treatment condition failed to produce hypermnesia. There were no significant differences between the scores of the treatment group receiving repeated testing and treatment groups who were tested for retention only once.

The effectiveness of the Superlearning method may have been limited by the design of this study. The subjects in the study had no previous classroom training in the use of Superlearning relaxation techniques. Some subjects may have found it difficult to relax, as evidenced by brief laughter by one student in each of three of the five classes receiving treatment. The researcher had had no previous contact with any of the classes in the study, which may have resulted in a lack of instructor-class empathy.

The single treatment in this study may also have limited success. A longer treatment may prove to be more effective. On the basis of this study, it was found that Superlearning, as defined and used in this study, was not effective in facilitating retention or hypermnesia. However, it may be possible that if students were taught to use the method over an extended period of time, significant effects would be found. Previous research supports this view. In short, it may be unrealistic to expect significant results after a treatment of short duration.

Another design factor which may have affected the results was the amount of time the experimental and control groups were actually exposed to the vocabulary list. The experimental group was exposed to the vocabulary list for a total of about four minutes; the remainder of the time being used to relax the subjects in anticipation of the treatment. The control group was in possession of the vocabulary list for a total of twenty-two minutes. This time difference may have affected the performance of the groups.

Finally, it should be made clear that this study tested the Superlearning method, and not Suggestopedia or SALT. Different results may have occurred had Lozanov's method been more closely followed.

* * * * * *

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Les effets de la Methode Acceleree sur la Retention/Hypermnesie de Rares Mots Anglais chez des Etudiants de Hautes Ecoles

Le but de cette recherche etait de determiner si la Methode Acceleree, definie par Ostrander et Schroeder, pouvait produire une hypermnesie chez les sujets qui apprennent de rares mots de vocabulaire anglais. Les 189 sujets choisis furent des etudiants de 2eme et 3eme annee niveau Hautes Etudes. Ils furent affectes au hasard par section de classe soit au Groupe-Contrôle soit à l'un des 4 Groupes-Traitement. Tous les groupes furent soumis a des examens avant et apres l'experience. Le groupe-contrôle, qui consistait de 2 sections de classe, apprit les mots de vocabulaire en utilisant une methode de son propre choix; les sujets furent examines pour leur abilite de Retention une, deux et quatre semaines suivantes. Un des groupes-traitement, qui consistait aussi de 2 sections de classe, fut egalement examine une, deux et quatre semaines suivantes. Chacun des autres groupes-traitement fut teste a une seule reprise une, deux ou quatre semaines apres le traitement. L'assortiment l'experience et ceux constituant les tests de Retention. Il ne fut revele aux sujets

leurs resultats a aucun moment. Une analyse de covariance, qui supprima les resultats du tout premier test, montra que, sur tous les tests de Retention, le groupe-contrôle s'exécuta perceptiblement mieux que chacun des groupes-traitement. Des raisons de ces résultats sont offertes et des recommandations sont proposées.

Auswirkungen des Superlernens auf das Behalten/Hypermnesia von seltenen englischen Vokabeln bei Universitätsstudenten

Der Zweck dieser Studie war es festzulegen, ob die Superlernmethode, wie sie bei Ostrander und Schroeder definiert ist, beim Lernen von seltenen englischen Wörten Hypermnesia erzeuge. Versuchsobjekte waren 189 Studenten des zweiten und dritten Jahrganges. Die Studenten wurden in Gruppen entweder zur Kontroll gruppe oder zu einer der vier Behandlungsgruppen zugeteilt. Alle Gruppen erhielten eine Vor- und eine Nachprüfung. Die Kontrollgruppe, die aus zwei Klassengruppen bestand, hat die Wörter mit beliebiger Lernmethode nach eigener Wahl gelernt. Die Studenten wurden nach einer, zwei und vier Wochen auf das Behalten der Wörter geprüft. Eine Behandlungsgruppe, die ebenfalls aus zwei Klassengruppen bestand, wurde eine zwei und vier Wochen nach der Behandlung getestet. Alle anderen Behandlungsgruppen wurden nur einmal nach 1, 2, oder 4 Wochen geprüft. Die gleiche Prüfung wurde als Vor-, Nach- und Behaltenstest gebraucht. Die Ergebnisse der Prüfungen wurden den Schülern nicht mitgeteilt. Die Analyse dieser Verdeckung, die die Auswirkungen der Vorprüfungsergebnisse beseitigte, zeigte, daß die Kontrollgruppe in allen Behaltensprüfungen bedeutend besser ($p < 0.05$) als irgendwelche der Behandlungsgruppen abschnitt. Die Gründe dieser Resultate sind hier aufgestellt und Vorschläge werden dargeboten.

Efectos del Superaprendizaje en Retencion/Hipermnesia en palabras raras del Inglés, con estudiantes universitarios.

El propósito de este estudio fue determinar si el método de Superaprendizaje, como lo definen Ostrander y Schroeder, produciría hipermnesia en el aprendizaje de palabras raras del Inglés. Los sujetos fueron 189 estudiantes universitarios, quienes fueron asignados al azar para una sección de la clase ya fuere para el grupo control o para un grupo de los cuatro en tratamiento. Todos los grupos recibieron examen antes y después del tratamiento. El grupo control, el cual consistió en dos secciones de la clase, aprendió las palabras utilizando cualquier metodo que ellos mismos escogieron. Ellos fueron examinados por retencion después de una, dos, y cuatro semanas. Un grupo en tratamiento, también abarcó las dos secciones de la clase y fué probado una, dos, y cuatro semanas más tarde del tratamiento. Cada uno de los otros grupos en tratamiento fueron examinados solamente una vez en una, dos o cuatro semanas después del tratamiento. El mismo exámen fue utilizado como pre-, post-, y exámen de retención. A los sujetos no se les dijo el puntaje de ninguno de los examenes. Un análisis de covarianza, el cual quita efecto al puntaje del exámen previo, demostró que el grupo control presentó mejor y significativamente (p<.05), todos los exámenes de retención que los otros grupos en tratamiento. Las razones y recomendaciones de estos resultados están ofrecidas.

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SALT in Africa: Unity in Diversity through Communication*

Suggestopedic Accelerated Learning Techniques for Teaching English in Black South African Schools

Frikkie van Kraayenburg
Lead the Field Africa (Pty) Ltd

Abstract. In 1985, after having introduced SALT to Stellenbosch University and various government departments; my company, LEAD THE FIELD, was granted the opportunity of introducing SALT to four state schools for black children at the primary school level. The vast majority of black children encounter English for the first time in their second grade at school. Vernacular and the two official languages (English and Afrikaans) are compulsory up to twelfth grade (school leaving) level. The project commenced with teaching English to Grade 2, 3 and 4 classes from 4 schools involving 560 students and 12 teachers in January 1985 and will extend over 2 academic years. Some of the classes consist of up to 55 pupils, from as many as 5 different ethnic languages (spoken at home). From the fifth grade all these pupils must have a sufficient command of English to be able to receive their education through the medium of English. Frikkie van Kraayenburg, a retired industrialist, was trained in 1979 by Dr Lozanov and Mrs Gateva

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* Paper presented at 1987 SALT Conference in Ames, Iowa.

in San Francisco. He also visited Dr. Lozanov for further training in Sophia, Bulgaria, and has travelled extensively abroad in search of the best method for implementing in the above project. He is pioneering Suggestopedia in Africa and is convinced that this method is the key to the future success of education in South Africa.

* * *

The Challenge

Never before, anywhere in the world, has a challenge of this nature and magnitude been undertaken. Our projected outcome is to achieve UNITY IN DIVERSITY THROUGH COMMUNICATION. It is a union or coming together of third world minds, backed by thousands of years of culture, ethnic distinctiveness and diversity where *feeling* is predominant, and first world minds cast in traditional logic and educational systems where *reason* is predominant and a paramount prerequisite to success. SALT, resulting from natural evolution or a possible mutation of consciousness, is the catalyst in this exciting project. Our goal is to balance the scales of Logic and Feeling.

Background

Before telling you more about the actual programme, I would like to set the scene, as it were, by giving you some background information.

Situated at the southernmost tip of Africa, the Republic of South Africa can truly be described as the meeting point of East and West, dividing, as it does, the Indian Ocean from the Atlantic Ocean. Its coastline stretches from the Orange River mouth on the Atlantic coast to Ponto do Ouro, the border with Mozambique on the Indian Ocean, a distance of almost 3.000 kilometers.

The total area of the country is 1.134.100 square kilometers - an area more than five times the size of Great Britain, three times the size of Texas, or larger than Germany, France and Portugal put together. The largest of our nature reserves, the Kruger National Park, is approximately the size of Israel, or Belgium.

Population

The population of South Africa shows great diversity. It totals almost 31.5 million and consists of substantive permanent communities (not random groups of individuals) representing the cultural identity of three continents: Europe - the Whites; Africa - nine distinctive Black peoples; and Asia - the Indians and Chinese. There is also a large community of people of mixed origin known as Coloureds. Where did all these people come from?

White People

The white community traces its origins to the first Dutch settlement at the Cape of Good Hope in 1652 - a year before New York was founded. Some thirty years later they were joined by a small number of French Huguenots, fleeing the religious persecutions of their homeland. Later admixtures were the British settlers of 1820, who numbered 5,000, and various groups of Germans, who arrived from 1848 onwards.

In the Boer War of 1899 - 1902, England declared war on the two Boer republics, i.e., Transvaal and Orange Free State, where more than 30.000 white Afrikaner women and children died in concentration camps. After the British victory, immigrants mainly from England, Ireland and Scotland, complemented the white community.

More recently large numbers of Portuguese have settled in South Africa making Portuguese the third largest European language spoken in South Africa.

The two main languages are English and Afrikaans, the latter, by the way, is the only Germanic language to have originated outside of Europe. The white people number 5 million today.

Mixed Races

The early Dutch settlers, unable to procure labor locally, imported slaves, principally from their East Indian territories, such as Malaya. Their descendants today form a group known as the Cape Malays who are all staunch Muslims. In those days, of course the Dutch had all rights to ownership over their slaves and the children born from such unions became ancestors to the present Coloured or mixed race community totalling 2.5 million today.

Indigenous

Populating vast areas of Southern Africa at this time were the Khoi-San people, more commonly known as the Hottentots and the Bushmen. Although quite different from the Pygmies of Central Africa, these people are also small of stature, with mongoloid eyes, high cheekbones and, as Sir Laurens van der Post, a noted authority of the Bushmen, says, "apricot coloured skin".

Another distinctive feature is steatopygia or large deposits of fat on the thighs and buttocks especially of the women - a feature, I might add, said to be hugely attractive to their men!

These were stone age people, principally hunter-gatherers (although the Hottentots did have sheep and cattle which must have found their way from Asia and down Africa many, many centuries before). They lived in family groups in complete equilibrium with nature, following migrations of the animals which they hunted with small bows and arrows.

The Hottentots were prepared to barter their sheep and cattle with the Dutch but generally were not interested in working for them - a concept quite foreign to their way of life.

So, we have very small groups of Khoi-San wandering around throughout Southern Africa, being overwhelmed by the larger and stronger people moving north-eastwards, i.e., the white people.

Obviously there were many clashes between these migrant groups, resulting in today, the Bushmen living in the less hospitable and drier areas in the west of the country, the Bantu-speaking people inhabiting generally, the higher rainfall areas both inland and along the east coast.

Today there are some 200,000 Bushmen in South Africa of whom approximately 20,000 are pure-blood Bushmen still living a stone-age existence in remote areas of Southern Africa.

Asian

After the liberation of the slaves throughout the British Empire in 1833, many Indians offered their services as laborers for ridiculously little pay - anything to escape the abject poverty in which they were living at home - and they began to make their appearance in many parts of the British Empire.

Sugar cane was initially grown commercially in South Africa in 1860 and as the country was then a British colony Indians were brought over as indentured laborers to work in the cane fields Most of these people were Hindus from the southern part of India They were followed by fare-pay[illegible] passengers from the northern part who, mainly Mu[illegible] came to seek new markets as merchants and traders

As the contracts of the laborers expired they were given the choice of remaining in South Africa or returning to India The vast majority decided to remain in South Africa and today the city of Durban on the East coast, has the largest Indian population of any city outside of India and Sri Lanka

There are five different Indian languages spoken here - Tamil, Hindi, Gujarati, Urdu and Telegu - although these languages could disappear in the foreseeable future as the youngsters apparently prefer to communicate in English and nearly all their schooling is in English East Indian people number 1 million today

Blacks

We now come to the black people of Southern Africa Where did they originate? It is generally accepted that they migrated southwards from somewhere in central Africa, perhaps the areas where Zaire or Cameroun are to be found today The reason for the southerly migration was probably the result of a population explosion in the area which caused small family groups to move further and further away in search of pasturage for their livestock and arable ground for the cultivation of their grain These were iron age people and although one or two archeological smelting sites have been found which date back to about 300 AD, the major migration seems to have started somewhere around the 1400 s

They moved, as I mentioned, in small family groups, loosely linked, rather like the clans of Scotland and settled in the most hospitable areas, often ousting with their superior size and strength, any previous inhabitants, such as the Bushmen.

There were clashes between the clans, mainly for territorial reasons, and some of them joined together for greater strength or protection. It was only in the early 1800's however, that we see the emergence of large and powerful groups, such as the Zulu under the leadership of the brilliant military tactician, Shaka. The total black population today is approximately 22 million.

Languages Spoken

Generally, the languages spoken by these people belong to one large group subdivided into four smaller groups, rather like, the division of the large Indo-European group of languages in Europe which can be divided into Romance and Germanic languages.

Amongst the Bantu-speaking people there are four main language groups, each one further sub-divided into ten separate languages, which, in turn, can be spoken in many dialects. The word "bantu" or a form thereof, meaning "people" is common to all these languages, hence the grouping together under one name of the black people of Southern Africa.

These language groups are:

Nguni - to which Zulu, Xhosa, Swazi and Ndebele belong.

Sotho-Tswana - to which North and South Sotho and Tswana belong.

Tsonga – to which Shongaan and Tsonga belong, and

Venda – which only has one language

Within each group the languages are sometimes related in a similar way to, say Italian and Spanish, whereas the difference between others such as the North and South Sotho is more a matter of pronunciation and different usages and forms of words, rather like American and English!

Today we have two official languages in South Africa, namely English and Afrikaans which all citizens learn at school.

Development

The largest black concentrations in urban areas lie in the industrial areas which developed around the diamond and gold mines which are to found mainly in the interior of the country.

The Country

It is a fascinating country, with modern cities and the most advanced technology, but with vast areas of unspoilt nature where large numbers of the original inhabitants, namely lion, elephant, rhino, giraffe and numerous different species of antelope wander freely.

The people inhabiting this southernmost tip of Africa are equally fascinating, from the little Bushmen, still living a stone-age existence, to some rural people still living a traditional tribal life, to the modern, Westernised city dwellers.

Clustered around industries where most work-opportunities are to be found, the more fortunate people live in good homes with beautiful gardens, and others, live in the far less attractive, poorer areas, which are to be found as part of any urban sprawl anywhere in the world.

The choice facing the central government was whether to build better, but fewer houses, or simpler but many more houses. They chose the latter. The houses are known as matchbox houses consisting of basic essentials, i.e., usually 2 but sometimes 3 bedrooms, a combined living/dining area and a kitchen. Toilets were built in the back garden. Since then we have seen other designs for economic housing being built to replace the slum areas. More recently the private sector, in the form of large industries, has contributed towards the cost of housing for their employees and today a visit to a black city like Soweto reveals a rich variety of housing styles from the simple matchboxes mentioned earlier, through alterations to these basic structures resulting in very pleasant homes to quite splendid mansions.

It is interesting to note the absence of high-rise apartment buildings in these areas. Only in the past 2 to 3 years have apartment buildings, with a maximum of three floors, been built in Soweto, a black city near Johannesburg.

Other land is being made available for more housing but the provision of electricity, roads, sewage and other services must first be provided by government. Because of the tradition of extended families all living together, many of the older and smaller houses are overcrowded and, in the rural areas, electricity is not always readily available.

Before we go any further, however, I would like to make it quite clear that I am neither condoning the situation nor condemning it. That is not within the realm of this paper. In giving you the background and setting the scene, I am dealing only with the reality of the situation. It is not my intention to discuss politics.

Education

Before dealing with our SALT project in four schools, let us look very briefly at the history of education in South Africa. The very first school was, in fact, a school for slaves at the Cape where owners of slaves could send them to improve their skills (many were highly skilled craftsmen like carpenters and builders). These were Malayan slaves imported by the Dutch. The children of the Dutch settlers also attended this school.

Later, as the settlers moved further and further away from Cape Town itself, it fell to the ministers of the church communities to instruct their flocks in the "three R's" of reading, writing and 'rithmetic as well as to care for their spiritual needs.

Missionaries set up schools where they instructed the converted in the ways of Western society and religion, some of these later growing into fully fledged schools and universities today. With the opening up of the interior of the land by the pioneers, itinerant teachers wandered from farm to farm offering frequently very meagre teaching skills in exchange for board, lodging and a pittance.

Apart from the establishment of private schools there was very little formal education available until after the formation of Union in 1910, at which stage the central government concentrated primarily on catering to the needs of the whites and the problems imposed by the presence of two languages as home languages.

As a result education for other groups has lagged behind, and although immense efforts have been made over the last ten years and are continuing to be made, there is still some discrepancy between the qualifications of some black teachers and white teachers.

In the past teachers with a Std 8 (grade 10) qualification could obtain a teaching diploma after one further year of study allowing them to teach in the primary schools. This is no longer the case today and all prospective teachers (white and black) must have successfully completed Std 10 (grade 12) and a three year diploma before being qualified to teach.

But what about those with inferior qualifications still in the teaching profession? They are being encouraged to upgrade their qualifications through part-time study, knowing full well the benefits that will accrue, not only better salaries but greater self-confidence and self-esteem.

* Cash grants are paid to those who complete one, or more than one, university course in their spare time.
* One year specialization courses have been introduced to train teachers for subjects where the shortage is most acute.
* Teachers can enroll at adult education centres (the equivalent of the American "night school" system) to improve their qualifications. There were about 4,000 such enrollments in 1985.
* Special in-service training centres have been established. One of the largest, near Pretoria at Soshanguve, was recently expanded to accommodate about 480 teachers.

At this point it would be interesting to look at some figures. There are more than six million black pupils now at school in South Africa. The total percentage of school-age children at school in South Africa is 65% compared with Egypt (64%), Ghana (52%), Tanzania (50%), and Ethiopia (29%). Adult literacy percentage in South Africa is 71% compared to that of Kenya (47%), Egypt (38%), Nigeria (34%) and Mozambique (26%).

About 1800 million Rand (approximately $900 million) is now being spent annually on teacher training and schooling for black pupils. On average fifteen new classrooms are built every day of the year by the Department of Education and Training alone. This means, on the basis of 40 pupils to a classroom, provision is being made for 600 more pupils every day, an average of one entire school every day of the year!

But in spite of these vast improvements, we are still faced with the reality of a very high drop-out rate, especially after the 4th grade once all instruction is given in English. One of the main reasons for this high failure and drop-out rate is the appalling level of communication skills in English, as most of the black teachers either lack the necessary linguistic skills or are completely unqualified to teach through the medium of a second language.

With the burgeoning growth of the black population the situation is deteriorating as the teacher-pupil ratio is on the increase. It is clear that no ad hoc or conventional effort, or approach, will improve the situation. Although there are people working on birth control and the advantages of smaller families are gradually being made apparent to black people, we are still faced with the realities of the situation at present. The average population growth rate amongst black South Africans exceeds 3.5% per annum.

The SALT Programme

We come now to our programme which commenced in January 1985, and is directed towards improving the standard of English and academic qualifications. Our project involves:

(a) 560 pupils and 12 teachers, in 4 primary schools and

(b) 850 pupils and 56 teachers, in secondary schools. Running parallel with the school programme, is another programme for adults, i.e.,

(c) 120 black supervisors and 2 teachers in a gold mining complex.

Project (a), which began with the academic school year in January 1986, is being monitored and evaluated over a two year period by the Human Sciences Research Council, an independent agency, and is being closely observed by representatives from several universities around the country.

The Human Sciences Research Council will report on the results to the Department of Education. The three schools are all situated in the greater area of Pretoria and Johannesburg, and vary from the relatively small and less well-off farm school of Ennis Thabong to the larger, modern school of Wedela which is well equipped with many of the latest teaching aids, including computers.

The secondary school project covers topics such as creative imagination, mind mapping, speed reading, memory training and self-esteem. At the same time it was also extended to a project teaching English to adult black mine supervisors to enable them to obtain blasting certificates. A literacy programme is about to be launched.

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The SALT method developed by Dr. Lozanov and as presently being used in adult education had to be adapted to the teaching of a second language at primary school level. Because so much emphasis is placed on learning and using English, the development of basic skills in the mother tongue is also very weak. The development of reading and writing skills in English must be built on a solid foundation of literacy in the pupils' mother tongue. The programme therefore begins with comprehensive reading and writing training in the vernacular, which is concentrated in Sub B (second grade) but introduced in Sub A (first grade) and used in a remedial form in Stds 1 and 2 (grades 3 and 4).

In this way the pupils in the four pilot project schools are properly prepared to undertake the study of English as a second language. Both the vernacular, or mother tongue, programme and the English programme incorporate mathematics as an essential element of language as it was found that the major areas of pupil failure in the lower grades were reading and writing in the mother tongue, English skills and mathematics.

The stories and elaborations employed in the teaching of English incorporate not only the essentials of elementary mathematics, but also themes drawn from other curricular areas, such as geography, history, health and hygiene and environmental studies.

In this way the students develop a broad command of English, and at the same time are being prepared to receive their entire school instruction in English.

Because of the large classes (there were 65 pupils in one of the classes last year!) and unqualified teachers with a poor pronunciation of English, innovative methods had to be introduced.

The typical Lozanov model of informal, small groups exposed to a highly trained and articulate teacher presenting two concerts was impractical. We compensated by introducing a puppet show once a week which is presented in 3 concert sessions of approximately 12 minutes each.

In the 1st concert, the teacher sets up a puppet theatre and presents an animated show with hand, or glove puppets, each one ethnically sculptured. The show is accompanied by a pre-recorded tape played through a high quality sound system. The story unfolds, based on the required syllabus and vocabulary, employing professional English speaking voices and Baroque music.

During the 2nd concert, the pupils follow the text of the show whilst listening to the same recording. In the 3rd concert, they just listen passively to a recording of one voice reading the text in the style of a Lozanov second concert. The teacher decodes the information using games, songs, grammar and reading during the rest of the week, the classes totaling 7 x 30 minute periods for Grades 3 and 4 and 10 x 30 minutes for Grade 2-per week.

Structured lessons are worked out for each teaching period and the teachers supplied with the printed plays for the puppet show as well as suggested lesson plans. Each pupil is supplied with a script of the puppet show which in turn is based on the lessons in the readers and language books currently used by all classes.

The teachers are further provided with a comprehensive Teacher's Manual to assist them in the delivery of the lessons and to guide them in the proper use of all the instructional materials.

Teacher Training

Prior to all this the teachers underwent training in the SALT method. In November 1985 three instructors from the California Language Institute were brought by me to South Africa and trained, who trained the teachers at the Alpha Training Centre. The 16 teachers and principals of the four schools allocated to the project by the Department of Education and Training were exposed to a three week course in Spanish.

This was thought to be the best way of proving to them that the method works and of demonstrating how it should be applied. Spanish was chosen as it is a language not generally heard in South Africa. The instructor was Miss Lupe Escamilla.

The teachers also received thorough instruction in the application of the method. A group of Grade 1 pupils, who have no English, were brought from a nearby school for Lupe to demonstrate the effectiveness of only one lesson. At the end of the three week course, the students gave a special presentation in Spanish to demonstrate their proficiency. An experienced puppeteer gave a concentrated week-end course in puppetry. This was followed up by further training in the handling of puppets and the preparation of scripts.

Once-a-month 3-day workshops for the teachers are held regularly during which talks are given on theoretical and practical matters. At these sessions the teachers have the opportunity to discuss their problems, ask for advice, compare notes with their colleagues and to demonstrate their efficiency in handling the puppets and conducting classes in the Lozanov way.

In addition the schools are visited at least once a week by one of our co-ordinating team (themselves trained in the SALT method) in order to help solve problems, give encouragement and assess the capabilities of the teachers. The efficiency of the teachers and the enthusiasm ranged from excellent to poor. It is encouraging, however, to see how even the poorest teachers have improved since the beginning of the programme.

Regular tests are written by all students. This will serve as a basis against which to measure the results of further tests. These results are being monitored and towards the end of the year it will be possible to produce a graph showing the overall pattern and improvement in the standard of English. The same test is being given to control groups at other schools where English is taught in the traditional way and these results compared with our SALT schools.

In the adult programme conducted at the gold mine, English is taught in the conventional Lozanov style.

Small groups of 12 persons spend up to 5 hours per day in an informal classroom where they listen to concerts one and two from texts specially written for this purpose. A computer based programme is employed to support the grammar and writing aspects of the instruction. Remarkable success is being achieved with the method. Interest by several large organizations has been expressed, but due to a shortage of skilled instructors, this opportunity can only be explored in 1988.

In the secondary school programme which only commenced during February 1987, we adopted the following procedure.

(a) Orientation of school management and heads of department in order to get a commitment from them.

(b) Orientation and training of all teachers in SALT methodology.

(c) Training of pupils in the method, i.e., self-knowledge and brain power skills such as rapid reading, mind maps, creative thinking, relaxation and imaging, memory training, ambidexterity, time management and goal setting.

Regular weekly visits to the schools involve monitoring of students in speed reading, mind maps, imaging and attitudes towards desired academic outcomes and self-esteem.

Cost

The cost of this project which was privately funded for the 1986 year amounted to 192,700 Rand ($96,350). Donations were received to the value of 19,000 Rand ($9,500), the shortfall being funded by my company.

Conclusion

I am convinced that SALT can make a major contribution to our country's progress towards Unity in its Diversity, ensuring happiness and a good life for all its people.

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SALT en Afrique: l'Harmonie dans la Diversite grâce a la communication; Techniques Suggestopediques de la Methode Acceleree en vue de l'Enseignement de la Lan-

gue Anglaise aupres des Ecoles pour Population Noire en Afrique du Sud.

En 1985, apres avoir introduit SALT a l'Universite Stellenbosch ainsi qu'aupres de divers secteurs gouvernementaux, ma compagnie LEAD THE FIELD se vit octroyee l'opportunite d'introduire SALT aupres de 4 ecoles primaires noires d'Etat. La grande majorite des enfants noirs font face a l'Anglais pour la premiere fois en 12eme. La langue nationale, l'Anglais et l'Afrikaans - les deux langues officielles de l'Etat - sont obligatoires jusqu'a la fin des etudes secondaires. Le projet commença avec l'enseignement de l'Anglais en 12eme, 11eme et 10eme annees au sein de 4 ecoles primaires, impliquant 560 ecoliers et 12 professeurs au mois de Janvier de l'annee 1985, le projet s'etendra sur une periode de 2 annees academiques. Certaines parmi ces classes comprennent jusqu'a 55 éleves qui parlent jusqu'a 5 jargons ethniques differents (a la maison). Arrives en 9eme, tous ces éleves doivent avoir acquis une maitrise suffisante de l'Anglais pour pouvoir dorenavant recevoir leur education en langue anglaise. Frikkie van Kraayenburg, un industriel pensionne, fut forme a San Francisco en 1979 par le Dr Lozanov et Mme Gateva. Il rendit visite au Dr Lozanov a Sofia, en Bulgarie, pour une ulterieure formation et a voyage de façon extensive a l'etranger dans sa recherche de la meilleure façon de suppleer a la methode qui lui permettrait de realiser le projet decrit ci-dessus. Pionier de la Suggestopedie en Afrique, il est convaincu que cette methode est la cle du futur succes de l'Education en Afrique du Sud.

SALT in Afrika: Einheit in Mannigfaltigkeit durch Kommunikation; Sugestopädische Beschleunigende Lerntechniken für das Englischlernen in schwarzen südafrikanischen Schulen.

Im Jahre 1985, nachdem SALT der Stellenbosch Universität und verschiedenen Staatsministerien vorgestellt worden war, wurde meiner Gesellschaft LEAD THE FIELD die Gelegenheit gewährt, SALT in vier staatlichen Schulen für schwarze Kinder auf Grundschulstufe eingeführt. Die Lokalsprache und die zwei offiziellen Sprachen (Englisch und Afrikaans) sind bis zum zwölften (Entlassungs) Schuljahr obligatorisch. Der Projekt begann im Januar 1985 mit dem Englischunterricht an Zweit-, Dritt- und Viertklässer aus vier verschiedenen Schulen (560 Schüler und 12 Lehrer) und wird sich über zwei Schuljahre erstrecken. Einige Klassen haben bis zu 55 Schüler, die zu fünf verschiedenen ethnischen Sprachgruppen gehören. Ab 5. Schuljahr müssen alle Schüler genügende Englischkenntnisse besitzen, um ihre Ausbildung durch das englische Milieu erhalten zu können. Frikkie van Kraayenburg, ein pensionierter Industrieller, wurde 1979 von Dr Losanov und Frau Gateva in San Francisco ausgebildet. Weiterhin besuchte er Dr Lozanov für eine zusätzliche Ausbildung in Sofia in Bulgarien und ist dann auch ausgiebig gereist, um die beste Methode zum Ausführen dieses Projektes herauszufinden. Kraayenburg bahnt den Weg für Suggestopädie in Afrika und ist überzeugt, daß diese Lehrmethode der Schlüssel zum zukünftigen Ausbildungserfolg in Südafrika ist.

SALT en Africa Unidad y diversidad a traves de comunicacion Tecnicas Sugestopedicas Aceleradas para el Aprendizaje en la enseñanza del Ingles con negros en escuelas Sur Africanas

En 1985, despues de haber introducido SALT en la Universidad de Stellenbosch y en varios departamentos del gobierno, a mi compañia, LEAD THE FIELD, se le concedio la oportunidad de introducir SALT en cuatro

escuelas estatales para niños negros a nivel de la escuela primaria. La mayoria de los niños negros en segundo grado encontraban dificultades con el Ingles por primera vez. Vernacular y los dos idiomas oficiales (Ingles y Africano) son obligatorios en doceavo grado (ultimo grado). El proyecto comenzó en enero de 1985 el cual se extenderia en dos años academicos enseñando los grados: 2,3 y 4, en cuatro escuelas de 560 estudiantes y 12 maestros. Algunas de las clases tienen 55 alumnos, que provienen de 5 idiomas etnicos diferentes (que hablan en casa). Los alumnos de quinto grado deben de tener suficiente conocimiento del Ingles para continuar su educación en Inglés. Frikkie van Kraayenburg, industrial jubilado, fué entrenado en 1979 por el Dr. Lozanov y la Sra. Gateva en San Francisco. El tambien visitó al Dr. Lozanov en Sofia Bulgaria para adquirir mayor entrenamiento, tambien ha viajado por el extranjero investigando intensivamente para obtener e implementar el mejor metodo con respecto a este proyecto. El es un pionero de la Sugestopedia en Africa y está convencido que este metodo es la llave del éxito, en el futuro de la Educación en Sur Africa.

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An Accelerated Learning Magnet School: Attracting Teachers and Administrators*

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Abstract. Through the modeling of Lozanov's liberating/stimulating approach to education, and the use of music, imagery and metaphor, a continuing education course inspired teachers to implement accelerated learning in their classrooms. As a result, an entire elementary school has become an accelerated learning magnet school. Demographics about the school and excerpts from the proposal are given.

* * *

At a time when a "back to basics" philosophy and the resulting stress and anxiety of both teachers and students permeate public education, the San Diego City School District views accelerated learning as an "attractive, viable and unique educational program." This fall the Horton Elementary School will launch one of the first schoolwide accelerated learning programs in the country. The San Diego school has become a total school magnet that will draw students from the entire district into its specialized program for the purpose of promoting racial harmony.

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* Paper presented at the 1987 SALT Conference in Ames, Iowa.

In the spring of 1986, I taught a 45-hour course at the University of San Diego in the Merritt System of Accelerated Learning. This system is based on Suggestopedia combined with the Guided Imagery and Music technique developed by Helen Bonny of the Institute for Music and Imagery, and the use of metaphorical story read to music. Five of the 38 teachers enrolled in my class were from Horton School. They were so enthusiastic about accelerated learning that they began to implement it in their own classes. It worked. Six months later, when the school district office approached Horton administrators and asked them to suggest a program for a new magnet school, the teachers recommended accelerated learning, never seriously expecting it to materialize. A proposal was written by the district after I met with a committee several times and agreed to be the consultant for the program. It was passed by the School Board in spring, 1987. The proposal outlines background information on Lozanov's approach and research support based on Lozanov's *Suggestology and Outlines of Suggestopedy* (1978) and my own *Successful, Non-Stressful Learning: A Guide to Teaching the* Lozanov Method (1985).

The Horton School is located in Southeast San Diego and enrolls 800 students, 48.8% of which are Black, 23.4% Hispanic, 18.1% White, and 9.7% Asian and other ethnic groups. While an existing Spanish Language Immersion program, established as an optional school-within-a-school magnet, will be maintained, the entire staff will now be trained in the accelerated/stress-free approach to learning for other subjects as well as foreign languages. To the extent possible, teachers will integrate all of the subject areas. The focus will be on social studies, science and art (the more open-ended afternoon program). However, without distracting from the AGP (Achievement Goals Program), it will be possible to integrate all areas by incorporating reading, language and mathematics into the other subjects. The goal will be to present a global, inter-related view of knowledge that will help children to learn and to retain what they learn." (Horton Proposal, 1987). Teachers who feel the method is not suited to their particular style, or who are not open to the accelerated learning philosophy have been offered positions at other schools in the district. Only two teachers chose not to be involved in the program and were replaced. Class size has been reduced to 25 students per class, and six teachers have been added to the staff.

In considering accelerated learning for the new magnet school, certain features of this approach rendered it a choice candidate. According to the proposal, the holistic presentation of subject matter, and the use of music, games and the arts to promote learning, coupled with promising student outcomes, made it a potentially popular magnet program. Particularly attractive to the School Board was the fact that "accelerated learning does not change what is taught in the school curriculum. Rather, it aims to change teaching habits and modes of thinking that are based on left brain conditioning and which perpetuate unbalanced development of thinking skills" (Horton Proposal, 1987). It seems to be much more viable to change the process of learning than to change the content.

The fact that students are able to learn more material in less time with less effort was, of course, a very appealing prospect. But just as compelling was the prospect of relieving the trauma and stress children normally experience in school, by creating a positive, joyful learning environment that would "give students confidence in their abilities, . . . help them to become more focused and receptive to learning, and promote their mental, physical and emotional health" (Horton Proposal, 1987). Teachers and school administrators are becoming more and more concerned with the psychological needs of their students in these stressful times of dysfunctional families and child abuse. They are realizing more than ever, how much the well-being of their students affects the learning process. Lozanov had called his method "psychotherapy in education" (Lozanov, 1978). He claimed that "Suggestopedy could become a universal educational system applicable to every level of school and university life," and that it would require "creating an atmosphere of profound psychological understanding, in which the personality is liberated and stimulated from early childhood" (Lozanov, 1978). In order for students to be free to develop their potential, teachers must first liberate themselves from the restrictions imposed on them by the rigid conditioning of educational programs and by society at large. Recently, with the focus on "keeping control" of their classes, some teachers have actually been warned by their administrators not to smile until after Christmas.

Two of the Horton teachers shared with me the things that had won them over to accelerated learning. One of the major influences was that they themselves experienced the liberating, stimulating effect of Lozanov's approach. They said that as their teacher, I had modeled a kind of learning that was fast, fun and effortless, and they wanted their students to experience that same joy. They began to introduce the concept at Horton School, as spring was an excellent time to experiment with new ideas. Each week, when they returned to their school after experiencing my accelerated learning class at the University, they would teach their colleagues all they had learned the night before. The teachers would gather in the school lounge in a spirit of contagious excitement. Each week, they tried accelerated learning strategies and found that they brought new life into their classrooms. Many of them began to incorporate classical music into their curricula, selecting it carefully and using it appropriately. They used it for stories and dialogs, for rest periods, for smooth transitions from one activity to the next, for stimulating creative writing, for silent reading and math, and as a catalyst for self-exploration.

The teachers began to organize their units in a more global, holistic way, as outlined in my new book, *Successful, Non-Stressful Learning: Applying the Lozanov Method to all Subject Areas* (Merritt, 1987). They found that the students' greater motivation and interest led to higher test scores and happier children. They started to notice how their body language and voice tone were affecting their students, and they made positive changes by integrating the paraconscious influences into their teaching. Most important, these teachers gave themselves permission to enjoy their teaching by developing a "suggestopedic attitude," one of natural spontaneity, positive attitude and relaxed focus. A teacher from another elementary school claimed that the accelerated learning class freed her to do things she knew intuitively were right, but seemed not to be the things a teacher "should do," such as playing music during work time and oral reading, smiling, and being playful.

Learning to know and love classical music was another motivating factor for teachers. Many of them who had had little exposure to it, felt that having experienced classical music had changed their lives. As one teacher put it, "It seems to add such a sweetness to the atmosphere." Another teacher said, "Since listening to classical music I actually like my class and see the students in a totally different light. I listen to music before the children come into class and this relaxes me and makes me more receptive to the children. Before this class I viewed this totally as a job and I had to be strict and could not have fun." Teachers who had been "Burned-out" and frustrated with their work were able to get back in touch with their love of teaching. They learned to use music to energize, relax and motivate both themselves and their students.

The Horton teachers felt that the music-imaging technique I used in class was very therapeutic for them, and I was able to combine this technique effectively with Suggestopedia. Music-Imaging, a group adaptation of the Guided Imagery and Music (GIM) method enabled teachers to make major breakthroughs in opening up to their own unconscious thoughts and feelings (Bonny, 1973). Releasing the dominance of the left brain through relaxation, and stimulating right hemisphere thinking by using a non-verbal medium such as music encourages the development of whole, healthy and creative individuals (Summer, 1981). This is true for teachers as well as students. When teachers entered the class each week, filled with distracting thoughts, tension and fatigue, I opened each class by suggesting a place in nature and asked them to notice visual images, memories, colors or feelings the music was bringing to them. I followed this with a piece of classical music to evoke imagery, such as those suggested by the Institute for Music and Imagery (Keiser, 1986). After listening to music in this relaxed state, teachers drew their impressions and then shared them with the group. The sharing is an important part of the experience, as it acknowledges and clarifies the imagery and encourages openness and connection among the members of the group. The music softened their armor, broke down their rigidity, brought them back in touch with their emotions, and opened their hearts to each other. They began to use Music-Imaging in their classes and found that students abreacted unconscious material that broke though learning blocks. A teacher who had been experimenting with music and drawing remarked, "One kindergartner, who had been abused, told a very vivid story about monsters and other frightening things the music brought up for him. I feel it released a lot of stress and fear. He settled down the most in the group, although he is the most hyper" (Merritt, 1987). For teachers and children alike, the joyful, peaceful feelings that music can evoke is therapeutic as well. When these music and art activities culminated in creative writing teachers reported that the writing was not only more prolific and spontaneous, but that grammar and sentence structure had also improved.

There is no doubt that implementing accelerated learning in a school system in order to convince administrators that it works may be more effective than writing a proposal and submitting it to a school district that has not yet experienced its successes. The Horton teachers, several of whom have already been implementing the new method, were trained in the Merritt System of Accelerated Learning for one week in August, 1987. I will observe their classes and give ongoing workshops on a monthly basis throughout the school year. My new book, *Successful, Non-Stressful Learning: Applying the Lozanov Method to All Subject Areas* is being used as the training manual for the program.

The Horton School offers optimal conditions for the pioneering of an accelerated learning school: the administrators are openminded and humanitarian, the teachers are loving, supportive and talented human beings, a spirit of cooperation and integrity permeates the environment, and three of the teachers are writing new units of study based on accelerated learning for their Master's

Degree in Curriculum Writing. The program will be evaluated by the school district according to their own design for implementation evaluation.

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Une Ecole-Aimant de la Methode Acceleree: Attirant Professeurs et Administrateurs

Grâce au modele de l approche liberatrice stimulante du Dr Lozanov envers l education, et l emploi de la musique, des images et de la métaphore, un certain cours pour la continuation de l education inspira des professeurs a employer la methode accélérée dans leurs classes Le resultat qui s ensuivit fut que toute une ecole primaire devint un modele, une ecole-aimant de la methode accelerée Des éléments demographiques sur cette ecole et des fragments du projet sont donnes

Eine Lernbeschleunigende Magnetschule: Anlocken von Lehrern und Verwaltern.

Ein Weiterbildungskurs nach dem Muster von Losanov s befreinde-anregender Einstellung zur Erziehung und der Gebrauch von Musik, Verbildlichung und Metaphor hat die Lehrer zum Gebrauch von der beschleunigenden Lernmethode in ihren Schulzimmern angeregt. Daraus folgte, daß eine gesamte Grundschule zur lernbeschleunigenden Magnetschule wurde. Bevölkerungsstatistiken über die Schule und Auszüge aus dem Unternehemen werden dargeboten.

Aprendizaje Acelerado en una Escuela Magnetica: Maestros y Administradores atrayentes.

A traves del modelo de Lozanov en liberacion/estimulacion como acercamiento a la educacion, y el uso de musica, imaginacion, metafora y cursacion continuada inspirada a los maestros a implementar el aprendizaje acelerado en sus salones de clase. Como resultado toda la escuela elemental se ha vuelto una escuela magnetica en aprendizaje acelerado. Demografia con respecto a las escuelas escogidas estan dadas.

J. of the Society for Accelerative Learning and Teaching, 1987, 12(1&2)

Vital Components for Effective Teacher Training*

Twyla S. Moschel

Abstract. The purpose of this study was to impact the effectiveness of teacher-training courses in the use of accelerative learning principles and techniques through assessing the needs and experiences of teachers trained to use this teaching and learning system. This study pinpoints to what degree teachers used the different components of the system and why there was a variation in usage among the components. The study also identifies difficulties teachers had in implementing the system and why these difficulties occurred. In addition, teachers described strengths and benefits of the system as revealed by their experience. Given this information, instructors can determine how best to design teacher-training courses and follow-up programs that provide the kind of training and support that enables teachers to better utilize the system as a whole as an ongoing instructional method.

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Introduction

Suggestopedia, the foundation for accelerative learning, is a philosophy and system for teaching and learning that enables students to maximize the use of their potential. However, it is not a system one learns to use simply by reading articles and books. One can learn about suggestopedia from the literature, but one learns how to teach using this system by observation, by participation in a class that is taught with this system, and by training and practice with the techniques. One gains in expertise through experience and continued study.

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* Paper presented at the 1987 SALT Conference in Ames, Iowa.

Acceleration, or the increased use of potential, can be measured by improved academic achievement, by learning a greater amount of material than is usual in a given amount of time, by learning a given amount of material in less time than is customary, and by improved retention and recall of material learned.

The outcomes associated with accelerative learning are the result of the combined and cumulative effect of positive expectancy, relaxation, whole-brain instructional orientation and teacher competency. That teacher competency in the use of this system is a prime factor in the success of the system is suggested in the results of comprehensive studies reported by Applegate and Jensen (1983) and Schuster and Gritton (1985). The academic gains among the accelerative-learning classes were reported to be idiosyncratic to each teacher and attributed to teacher competency. When one compares the differences in achievement gains among other reported studies in the United States (Moschel, 1986) one further concludes that teacher expertise with the accelerative learning system is a crucial factor in the success of the system.

Lozanov (1978), the originator of suggestopedia, contends that the acceleration in learning and the positive affective gains attributed to the use of this system are greater than the sum of the components of the system. He cautions that using bits and pieces of the suggestopedic system will be counterproductive and will detract from the cognitive and affective effectiveness of the system. To this end Lozanov ideally advocates selection of those who will teach using this method, careful training in the system, and ongoing supervision of teachers using the system.

In support of ongoing supervision, Rand-Barzakov (1986) reports that presently there are teachers in the suggestopedic schools in Bulgaria who have lapsed into previous ways of teaching. Because Lozanov is no longer with the Institute of Suggestology, he is unable to provide the training and supervision deemed necessary.

Schuster (1986), to emphasize the importance of knowledge and competence, cites an example of an individual in Germany who, after attending a basic SALT workshop and with no further training, became an "instant expert" on SALT. The tapes and books this person produced did not follow sound system principles and those who used them did not achieve the expected results. It is likely that there are other instances where accelerative learning is used by persons who, for various reasons, are less than competent with the system. Schuster suggests that some form of certification in accelerative learning should be considered to protect the integrity of the system.

Proponents of teacher competency in the use of suggestopedic based instructional systems are justifiably concerned. Not only do old habits die hard, but the teacher using accelerative learning may be an island onto himself/herself in a setting where other educators use a different instructional method. Proficient use of accelerative learning requires knowledge, skill, and practice. Because this system is still evolving (Rose, 1985) practitioners need to keep abreast with new developments in the field. Therefore, supervision and/or training follow-up become paramount to continued effective application of the principles and techniques of the system.

How, then, does a prospective accelerative learning teacher acquire the training and continued support needed to effectively teach using this system? In reality, those wishing to use accelerative learning as an instruction method will find that the training, supervision, and educational setting in the United States is quite different from Lozanov's experimental schools in Bulgaria. In all likelihood, training will consist of an intensive three-day or one-week workshop with little or no follow-up once the teacher is back in the classroom. In some instances, an additional advanced training course is available on a similar three-day or one-week basis. Occasionally two or three-week training programs are offered. Because training generally takes place outside the standard university teacher-training programs, the courses or workshops have had to be designed to accommodate the time that teachers have available for personal training aside from the demands of their employment. Hence, the short, intensive workshop format.

Teachers desiring to use accelerative learning come from a wide variety of instructional settings. Therefore, practitioners and trainers in the United States suggest that, after training in the philosophy, principles, and techniques of this system, one should begin implementation with the component(s) with which one is most comfortable. Then, as one learns more about the system and gains in expertise with the techniques of the system, other components of the system can be incorporated into the instructional process until as much as possible of the system as a whole is utilized (Barzakov,

1984. Brownlee. 1982; Merritt. 1985. and Schuster & Gritton, 1985).

Given the time constraints for teacher training, what can be done to assure that teachers desiring to use accelerative learning will receive the kind of training that will enable them to successfully use the system in their classroom? Teachers who have received training and who practice an accelerative learning method in varying degrees can provide valuable insight into what constitutes an effective training course. This study is based on a survey directed to teachers who were trained to use an accelerative learning system. The survey provides insight into the degree that the different components of the system were used and why there was a variation in usage among the components. The survey identified difficulties that teachers had implementing the system and why these difficulties occurred. From personal experience, the teachers described the strengths and benefits of the system. Analysis of the survey provides information and guidance to those who design and instruct teacher-training courses in accelerative learning.

Survey

A twenty-two item survey was sent to seventy-five educators who had participated in either a three and one-half week OPTIMALEARNING™ Summer Institute in San Francisco, California, or a one week Joy of Learning summer workshop in Cedar Falls, Iowa or Cedar Rapids, Iowa. Of those seventy-five surveys, sixty-four percent were returned usable for tabulation. The respondents included elementary, junior, and senior high school teachers, junior college instructors, and university professors. A variety of academic subjects was represented. Although the majority of the respondents had used accelerative learning for less than one school year, twelve respondents had used the system from two and one-half to seven years.

The questionnaire identified the components of accelerative learning and respondents indicated the degree that they used each component by giving each component a rating of one to five (five indicating planned integrated use) on a Likert-type scale. Respondents identified a reason from a given list of possibilities for each item rated one, two, or three. Five open-ended questions enabled the respondents to comment on positive results from the use of accelerated learning, specific difficulties encountered, future plans for incorporating accelerative learning, feedback from students, colleagues, administrators and/or parents, and personal benefits from the use of this system. Although the respondents could remain anonymous, the vast majority of those responding signed the survey.

Analysis

An analysis of the degree of usage of the components of accelerative learning reveals a distinct difference in the degree of usage among the components. Those components with a significantly higher percentage of four or five ratings (high usage) were music for relaxation, music to create a mood, reverse motivation, educative feedback on student in-class contributions, physical relaxation exercises, global theme, integration of the arts, whole-brain instructional orientation, and a planned, enriched classroom environment. There was a fairly even split between the four and five ratings and the one, two, or three ratings (low usage) on imagery for relaxation, imagery to review or teach content, and concert reading for long term memory. Those components with a significantly higher percentage of one, two, or three ratings (low usage) compared to four or five ratings (high usage) were best performance imagery, pseudo-personality, metaphor and/or story line, and invention/recreation.

The majority of respondents rating any of the forms of imagery with a one, two, or three indicated that they didn't feel sufficiently skilled in the component or that they were uncomfortable using the component. A few respondents related that they didn't use the component because student response was discouraging.

The most frequent reasons given for a one, two, or three rating for the use of pseudo-personality, story line and/or metaphor, concert reading for long term memory, global theme, physical relaxation, and invention/recreation were also that respondents didn't feel sufficiently skilled or didn't feel comfortable using them. Another common reason cited for lower usage by a few respondents was that those components required too much time either in teacher preparation or in class time.

Occasionally a respondent assigned two of the given reasons for a one, two, or three rating. In most of the cases where a respondent declined to assign a reason for a one, two or three rating it was noted that the component was not used because, in his opinion the component was not applicable or appropriate to the course of instruction or the instructional setting. In some cases respondents indicated they declined to rate an item because they were confused by the terminology.

In addition to the rated items, five open-ended questions provided the respondents with the opportunity to comment on positive results, difficulties encountered, future plans, reactions of colleagues and others, and personal "life-activating" benefits. A synopsis of those comments follows.

When asked about specific positive results, the respondents answered in reference to themselves that they felt more creative, relaxed, energetic, and inspired. They reported that teaching was more fun, student/teacher rapport was good and that there were more "aha's" for the teacher as well as for the students. In reference to the students the respondents said that the students had a higher success rate, they were more interested and inquisitive, they learned easier, up-tight students performed better and that students were happier and more involved. Teachers also reported that students had better understanding, their work was more detailed, and their writing was more descriptive.

In response to inquiry about specific difficulties encountered a significant number of the respondents commented on the amount of time involved in preparation with an accelerative learning method. Teachers who traveled from room to room reported that there were logistical problems in room set-up and in bringing in equipment. Many teachers noted that it was difficult to secure appropriate music. Several teachers observed that some students just couldn't or wouldn't give things a chance, felt uncomfortable with the techniques and/or couldn't accept that learning could be fun. Several respondents commented that they felt like "pioneers" and needed more contact with other teachers using accelerative learning as an instructional method.

Almost without exception respondents had plans for the future. Those things mentioned most frequently were to increase the use of music, the use of different kinds of imagery, and the use of relaxation techniques. Many teachers stated that they wanted to gain more expertise with the techniques and that they wanted to use them in more of their subject areas and in a more systematic, consistent manner. Respondents also frequently mentioned that they wanted to learn more about whole-brain learning and become more knowledgeable about accelerative learning.

In reference to feedback, respondents most frequently noted student enthusiasm for and enjoyment of imagery and music. Several respondents related that parents had requested music for use at home. While some teachers found that their administrators were neutral, others reported that administrators were supportive or enthusiastic. One teacher was cautioned by an administrator to not do anything "too strange". Whereas one respondent reported that parents requested a workshop for parents, a few other teachers said that some parents indicated that this method was "too non-traditional". While several teachers reported colleague interest in accelerative learning, one teacher related that colleagues couldn't understand how kids could have fun learning. Several respondents expressed the opinion that accelerative learning methods should be introduced carefully and slowly to help ensure a positive reception from the educational community. Teachers who had students who thought accelerative learning methods were boring or silly or who were otherwise disinterested, felt that perhaps it was because they, as teachers, were not confident and/or expert enough in the use of the system and/or specific techniques. Other teachers said that, aside from a small minority of students, students who at first were skeptical became positive.

Because OPTIMALEARNING^{tm}, an accelerative learning system, has been termed a "life-activating" system by its creator, Ivan Barzakov, respondents were queried about personal benefits. The following phrases are representative of respondents' comments: life is fun . . . there isn't enough time to do all I want to do . . . a lot of work but I enjoy the challenge . . . use music and imagery for relaxation and best performance . . . have taken on better health habits . . . broadened my interests . . . want to explore OPTIMALEARNING^{tm} more . . . greater awareness of my need to relax . . . whole-brain learning most useful . . . have done mere reading for learning in other areas . . . increased personal motivation . . . increases awareness of the need for aesthetics in my home . . . more energy . . . more creative ideas . . . picked up on previous hobbies . . . taught myself to play the guitar and composed a song that was used at school . . . began piano lessons . . . more aware of alternatives . . . use some of these techniques to help my own children with homework . . . more aware of the importance of my own life . . . better memory . . . have become more assertive . . . more positive attitude . . . am more funny in the classroom . . . have studied more in the subject area I teach for fun . . . communicate at a deeper level . . . accomplish more with my time.

Information gleaned from this survey will provide direction for those who develop training courses in accelerative learning and for those who seek training in accelerative learning. The following recommendations are made in the context of a training course of optimum use for educators.

Recommendations

1. In order to avail oneself of the best possible training, a prospective accelerative learning trainee should seek a course that is taught utilizing the accelerative learning system. The medium is the

message and the message is the medium In that way the trainee experiences the system firsthand while learning the system

2 The course should provide a foundation in the basic philosophy and principles of accelerative learning as well as the techniques of the system This promotes confidence in the system and assists the participants in becoming articulate about the system

3 The course should be taught by an instructor who is well grounded and trained in the philosophy, principles and techniques of the accelerative learning system who is experienced in the use of the system and who models the system when teaching Thus the integrity of the system is maintained

4 The system should be offered as an alternative to the instructional method that the participant is currently using It appears that teachers who effectively use this system have an affinity for this philosophy and style of teaching They are ready for or have begun some form of personal transformation This is a system for teaching and learning not a curriculum

5 Direct classroom application is more easily made when the course is designed specifically for teachers Demonstrations and examples of lessons and units of study for a variety of grades and subjects should be provided to assist teachers in personal adaptation and application Some teachers relate that they need a bridge from course context to personal application

6 Ample opportunities should be provided for individual and group practice with the techniques of the system accompanied by feedback This is especially crucial for imagery concert reading relaxation exercises and the use of metaphor and story line as these are techniques with which

teachers, in general, are least familiar and, therefore, most uncomfortable using.

7. The course should clearly compare and contrast accelerative learning with common educational practices and should include education-related research that supports and explains the techniques and results attributed to an accelerative learning system. This will enable the novice to implement the system with confidence and to explain the system so that it can be better understood by others.
8. Participants should be given the opportunity to outline sample lesson and unit plans that utilize the system. Feedback should be given. Near the end of the course participants have found it helpful to formulate a "plan of action" through which they can begin to implement accelerative learning in their instructional setting.
9. A course that provides follow-up is ideal. The follow-up could be in the form of advanced courses that can be repeated as desired, periodic symposiums, and/or periodic interest group meetings directed to perpetuating the study and use of accelerative learning. Follow-up provides needed support and encouragement, and fosters further growth.

Additional Comments

The Society for Accelerative Learning and Teaching has become the umbrella organization for accelerative learning and could take an ongoing active role in impacting teacher training. In the interest of the integrity of accelerative learning and the quality of the use of this learning system, it is suggested that the SALT organization:

1. develop guidelines for course content (core components).
2. develop guidelines for assessing instructor (trainer) competency.
3. provide course and instructor endorsement.
4. promote a commonality of accelerative learning terminology so that terminology will be uniform among instructors, practitioners, and proponents of the system and acceptable to American educators.
5. actively facilitate the formation and working of local accelerative learning interest groups for networking and study.

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Composantes essentielles pour la formation efficace du professeur

Le but de cette recherche etait d'assurer l'efficacite des cours de formation des professeurs dans leur utilisation des principes et des techniques de l'Enseignement Acceleree à travers l'evaluation des exigences et des experiences de ces professeurs mêmes, entraines à appliquer ce systeme d'enseingnement. Cette étude indique à quel degre les professeurs utiliserent les differentes composantes du systeme, et les raisons pour lesquelles ils les manipulerent de façon variee. L'etude identifie egalement les difficultes recontrees par les professeurs dans leurs efforts à suppleer au systeme et les raisons pour lesquelles ces difficultes apparurent. De plus, les professeurs decrivirent les points forts et les bienfaits du systeme au fur et à mesure de leur experience. Grâce à cette source de reseignement, les instructeurs à leur tour ont l'opportunite d'ebaucher les meilleurs modeles de cours de formation pour professeurs et d'augmenter l'efficacite des programmes fournissant ce genre de formation ainsi que le support permettant au professeur un meilleur emploi du systeme dans son entite, en tant que methode d'instruction.

Vitale Komponenten für wirkungsvolle Lehrerausbildung

Der Zweck dieser Studie war es, die Wirksamkeit der Lehrerausbildungskurse in lernbeschleunigenden Prinzipien und Techniken durch das Festlegen von Bedürfnissen und Erfahrungen der Lehrer, die in dieser Lern- und Lehrmethode geschult waren, zu beeinflussen. Die Studie hebt hervor, zu welchem Grad die Lehrer die verschiedenen Komponenten des Systems gebrauchten und warum es Unterschiede im Gebrauch der Komponenten gab. Die Studie erkennt auch die Schwierigkeiten, die die Lehrer beim Anwenden der Methode hatten und warum diese Schwierigkeiten eingetreten sind. Außerdem beschrieben die Lehrer auch die Stärken und Vorteile des Systems. Mit dieser Information können die Lehrer bestimmen, wie sie am besten Lehrerausbildungskurse und weitere Programme darstellen sollten, welche diejenige Ausbildung und Unterstüzung bietet, die es den Lehrern ermöglicht, das System als Ganzes als eine fortdauernde Lehrmethode besser zu gebrauchen.

Componentes Vitales para un Entrenamiento Efectivo en el Maestro

El proposito de este estudio fue impactar la efectividad en los cursos de entrenamiento del maestro usando los principios del aprendizaje acelerado y las tecnicas por medio de las necesidades y expijadas en los maestros entrenados para utilizar este sistema de enseñanza y aprendizaje. Esto estudia puntos claves en que grado los maestros usaron los diferentes componentes del sistema y por que hubo variacion al uso entre los componentes. El estudio tambien identifica las dificultades que el maestro tuvo implementando el sistema y por que ocurren estas dificultades. Tambien los maestros describieron fuerzas y benefic-

ios del sistema como revelación de sur propia experiencia. Dada esta información, los instructores pueden determinar como es mejor para diseñar los cursos de entrenamiento para maestros y siguiendo los programas que proporcionan la calidad de entrenamiento y ayuda a capacitar a los maestros para que utilicen mejor el sistema como continuación de todo un método instructivo.

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Eurythmy: Art of Movement in the Waldorf Schools*

Earl J Ogletree

Abstract. Eurythmy is a form of controlled therapeutic movement developed by Rudolf Steiner (1861-1925), the founder of the Waldorf schools. Eurythmy is employed in the arts, education and medicine. It is used in the Waldorf curriculum to facilitate physical and psychological development of children and to enhance the areas of speech, language arts, geometry and physical education.

* * *

Many children are frustrated by their failure in a society that places great emphasis on intellectual development and academic achievement. The emphasis has been on the abstract, the theoretical and sometimes the meaningless aspects of education, rather than the concrete, the physical and emotional aspects of learning. As a consequence of this neglect, coupled with the increased sedentary activity of TV viewing by young children, there is an alarming increase in the number of children who lack adequate motor coordination and body management skills.

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* The Waldorf Schools, founded in 1919 in Germany by Rudolf Steiner, are among the largest independent school movements in the world. There are now 400 Waldorf Schools internationally, including approximately 80-90 in the United States. See Ogletree, E.J. (1980). Waldorf Schools: An Artistic Approach to Education. *Journal of the Society for Accelerative Learning and Teaching*, 5(2) for additional information.

Physical movement in learning is particularly important for children in terms of the way they get to know their environment, the world. They are first active, dynamic moving beings and are emotionally and motorically involved in learning about themselves and experiencing their surroundings. Cognition is the last step in the learning process. For children, movement is the first step in the learning process. Purposeful movement stresses the unity of the person--linking and coordinating the physical, emotional, social and intellectual in productive activity.

Raymond Barsch (1965) founder of Movigenics--the study of the origin and development of movement patterns leading to learning efficiency--concluded:

> Movement has survival value to the human organism. When energy forces must be managed, informational data processed and behavior organized in ever increasing complexity, a program devoted to achieving optimal movement holds promise of making a significant contribution to learning efficiency (p. 16).

Wholistic learning approaches exploit the hidden physio-psychological potentialities of the human being. By adhering to the maturational readiness stages of learning, wholistic learning becomes an integral part of the learning process. The teacher is able to take advantage of the psychic reserves of the learner, thereby making learning compatible, efficient and impressive. Similarly, suggestive education or Suggestology economizes the learning process by impressing what is being learned in an efficient manner, as does rhythmical motor activity. Rhythmical activity provides experiences that are compatible with the child's learning style and lays the foundation for later conceptualization and abstract learning. As with Suggestology, rhythmical-based learning is not harmful to the child; it enhances learning, interest and attention and reduces anxiety.

The child grasps the meaning and significance of what is being learned without reliance on the analytic processes of cognition. The very act of disciplined rhythmical movement enables the child to experience academic content without being aware that he/she has done so. Suggestive education also enables the learner to participate actively which enhances the ability to concentrate and respond quickly. Research shows that learning gained via motor activity is more rapidly acquired and more stably formed than learning acquired passively (Haggard and Rose, 1944). Allport (1960) stated "The perception of meaning is incomplete without full manipulation and bodily movement" (p. 185). Learning is possible only when there is active assimilation which subsequentially transforms the learner. Rudolf Steiner (1861-1925) had more or less the same idea regarding the influence of controlled motor-movement when he developed the art of Eurythmy in 1912. Eurythmy (which is not to be confused with Dalcroze's "Eurythmics," a form of dance to melody), is instead, a form of disciplined movement of the arms and the body that expresses the vowels and consonants of speech and the rhythm and intervals of music. Eurythmy is an art form (performed by groups or by individuals) and also a form of therapy. There are three types of Eurythmy--speech, tone, and curative (remedial). Speech Eurythmy is associated with speech, and tone Eurythmy with music. Both are utilized in the performing arts on the stage and a technique of teaching subject matter in the school. Both have an artistic and pedagogical function. Curative or therapeutic Eurythmy, on the other hand, is based on the gestures and movements of artistic and pedagogical Eurythmy (speech and tone) except that the movements are emphasized more dynamically, and are given and supervised by a medical doctor.

Eurythmy is not merely an arbitrary movement, nor a form of dance to music that has been intellectually thought out nor is it aerobics. It is a disciplined art developed out of a particular concept of human development--the idea of what the human should become. Steiner concluded that the movements of the organs of speech when producing speech sounds were similar to the movements of the dynamic or energy forces in the body. Steiner (1932) adopted, transformed and extended these speech formations made by the speech organs, to the movements of the whole body, particularly to the arms and the hands.

Wallace (1942), a curative Eurythmist, explained the relationship between speech, the inner dynamic forces of the body and Eurythmy:

> The whole connection between the sounds of speech and the inner dynamic of our whole organism was clarified by Steiner. He showed that the dynamics which produce the smallest movements of speech are the same as the creative (energy) forces which construct and maintain our organism; that speech is only a weak reflection or condensation of these forces (p. 8).

In fact, speech is the resounding product of energy forces. It is an artistic expression, a performing art. It is used to facilitate speech development, and it is used therapeutically to enhance and rebalance the development transformations of the body.

The purpose of teaching Eurythmy, according to Karl Van Oordt (1955) an Eurythmist is that:

> If we keep alive this stream of life through our body and let it enliven us again and again, we should be able to stand more firmly in life, would be able to bring our intellectual knowledge, what we learn in our heads, into the limbs, into our motivations and into our actions. That is what we want to achieve when we do Eurythmy with the children.
>
> She adds that Eurythmy facilitates nature forces--living, growing life forces--to stream freely and unhindered through our body--not wildly and chaotically, but consciously guided by the personality which abides in the body, by our real selves (ego) (p. 7)

What Van Oordt is referring to is that every physical gesture of movement we make requires energy and dynamic creative forces of growth. By means of the disciplined movements inherent in Eurythmy, these dynamic forces are brought under the control of the person doing Eurythmy. What occurs is an enhanced coordination of motor-movement, emotions and thinking as well as having a healthful influence (i.e., the energy or forces of physical growth are the same forces used for cognition).

The movements in speech and tone of Eurythmy are prescribed and taught by the Eurythmists. However, curative Eurythmy requires a physician to diagnose the malady and prescribe specific movements. The difference between curative and other forms of Eurythmy is the form and emphasis of the movements. A specially trained physician is generally associated with a Waldorf school. The physicians are trained in Steiner's anthroposophical (wholistic-homeopathic) form of medicine and Eurythmy. There are probably hundreds of such specially trained medical doctors, mainly in Europe. However, the limitations of this paper do not permit a detailed exploration of Steiner's theory of child development and medicine.

In curative Eurythmy, the consonant and vowel sounds of speech such as "B", "U", or "A", "E" are expanded into and overtly expressed in the larger movements of Eurythmy using the arms and body, "which, when intensified in curative Eurythmy exercise, work or are reflected back into the organism to activate (and stimulate), the dynamic upbuilding forces of the body," rather than turning them outward in artistic expression. (See Figure IV.)

Wallace (1942), a curative Eurythmist for over forty years, says: "Curative Eurythmy is used to stir into normal activity those upbuilding forces which have become too sluggish to maintain health." According to Wallace, the consonant sounds performed Eurythmically have a relationship to and an effect on the organs and functions of the body; "diseased organs often can be rebuilt and disturbed functions normalized." She adds that "one combination of consonant exercises wakes up the stolid type of person both physically and mentally, while another builds more stamina into the (weak) body of the oversensitive type."

The Eurythmic vowel sound exercises have an effect upon the psychological development of the person. For example, the "E" sound and its corresponding Eurythmic exercise help the uncertain, shy or weak person to gain confidence and self-directed activity. Whereas a carefully chosen combination of consonant and vowel exercises can help to harmonize and unify physical, mental and intellectual development, making the physical body more amenable for the developing personality.

Like the consonants, these movements are done in various positions and intensity. Curative Eurythmy works with the single sounds of speech, based on medical advice. Not only are single sounds and certain sequences of sounds used, but walking and moving in certain patterns, e.g., spiral, lemniscate, pentagram, etc., and rhythms are integral parts of Eurythmy. Hexameter, iambic and trachee rhythms are used to treat different types of personality disturbance and pathological conditions. Wallace (1942) stated that Eurythmy is used to help the physical body to become a more pliable instrument for the child's developing personality and intellect. She added:

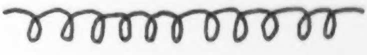
> Toward adolescence special exercises help to harmonize the whole organism, making the transition period less chaotic. The wide variety of problems range from correction of posture and pronated ankles to disturbance of the metabolic (respiratory) and nervous systems, from difficulties of a psychological and temperamental character to serious illness (p. 6).

Tone Eurythmy is also used therapeutically. Music has always been thought to have a healing effect on the human being. Beat, rhythm, tone and intervals, the basis of the Eurythmy, are related therapeutically to the respiratory, nervous and the metabolic systems. In addition to the medical aspects of Eurythmy, in the Waldorf schools it is basically used to help bring harmony between the child and his/her own body so that he/she develops his/her best faculties. Eurythmy is taught to the child to help his/her personality grasp his/

her own physical body in the proper way, thereby gaining conscious control over his/her activities to integrate the child's physical development with his/her psychological development--the basis of gross and finer motor skill development.

Pedagogical Eurythmy is also employed to introduce and teach a myriad of academic subjects such as speech, reading, geometry, drama, poetry and music.

By means of Eurythmic exercises the children experience the sounds of speech with their whole body, and enhance the skill of proper listening. Young children find pleasure in imitation and delight in movement. In the teaching of writing and reading, the characteristic sounds and forms of letters spring into life as they perform them Eurythmically. For example the rolling movement of the "R" is expressed Eurythmically by that of rolling wheels in motion. See Figure IV.



To complete the letter for "R", as they write the verse:

> "Restlessly rushing, rippling, rolling, races the
> river down to the sea."

Poetry and music are incorporated to support these gestures, allowing the child to experience these subjects through ear, eye and movement, so that the child's whole being is involved in the learning process, not just the intellectual. The Waldorf children learn most of the letters of the alphabet in this manner, conveying to them the feeling that the letters are intimately related to them. The letters become their friends, so to speak. Learning becomes play--movement--fun.

Also in the early grades, the children run geometric forms Eurythmically to the accompaniment of musical themes. Here the child experiences a straight, curved and bent line with his/her whole body. He/She is experiencing it before he/she intellectualizes it. Children are learning subject matter without really realizing they are learning it, because learning is fun.

Heydebrand, a Waldorf teacher, says that the marking of rhythm in poetry is cultivated. "Meter is marked by children taking long and short steps in pacing to recitation." Listening is developed by the children clapping their hands and running with their feet to simple rhythms of poetry. Also moving in Eurythmic forms to music enhances the children's feeling and appreciation for it.

Little children love to express high and low, loud and soft, long and short sounds in movement. And at ages nine and ten children enjoy listening to and expressing minor and major scales Eurythmically. Eurythmy not only assists children in learning the musical scales in an overt expressive manner, but helps them "to pass unscathed through the difficult early stages of learning to play a musical instrument." Learning is couched in activities that are compatible with their natural style of active participation in their environment.

Musical movement is also associated with the rhythmical forms and patterns found in geometry. In the lower grades the children learn to run straight and curved lines, beginning with the forming of the circle. Harwood (1958) concludes, "Here the foundations of geometry are laid." "The children step, walk and run--to music in varying rhythms--the forms of the square, circle, pentagram, lemniscate, and so on." Eurythmical gestures are an integral part of the lessons. This is carried over into their form drawing lessons which form the basis of writing. In the Waldorf schools form free-hand geometry drawing precedes the writing of letters and numbers, and writing precedes learning to read. They first learn to read what they have written and, in the later grades, to read from a printed page. See Figure 5 (at the end of the article), geometric form patterns.

Form drawing is used to facilitate the coordination of motor movement and mind, perceptual-motor development. An examination of the geometric forms in Figure 5 shows the forms evolve from simple to complex--from simple wavy to complex metric patterns. Via repetitive exercises children learn to execute the forms accurately. What was initially a conscious-cognitive-motor exercise gradually unfolds into instinctive motor control. This transition becomes therapy, i.e., as the form drawing becomes a less conscious activity, perfection in execution is the result. The perfection of a motor activity lies in the forgetting of the conscious process. For example, we learn to perfect our driving and writing skills by means of instinctive responses because the actual process of accomplishing the activity sinks into the subconscious and is consciously forgotten. Form drawing is taught in grades one through five, followed by plane, perspective and projective geometric exercise using compass, protractor and ruler in grades one through nine. The Waldorf children experience geometric patterns and figures prior to learning their mathematical bases. Not only do the children develop voluntary control over their gross and fine motor systems and expand their concentration abilities, but they also acquire the feeling for form, geometric relationships and harmony.

The geometry in Eurythmy is taught simultaneously with the learning of number forms and the movements of the alphabet which correspond to the vowels and consonants in the first and second grades (The alphabet method of reading is taught in the Waldorf schools)

In the third grade the Eurythmic movements for different sounds are sufficiently developed to present word pictures and sentences The language of poetry, its content and inner beauty are stressed in the Eurythmy lesson

In the elementary grades, Eurythmy exercises are given to develop alertness, a feeling for space and mobility, still others for the purpose of awakening social feeling by performing Eurythmy in group activities

As the children progress through the grades, the manner of forming the Eurythmic gestures become more disciplined and precise For example, Eurythmy is also used to correct careless handwriting and to bring the nine year old child into more conscious relationship with his/her environment

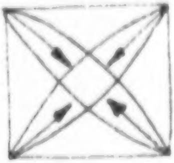
In the fourth and fifth grades language is grasped more consciously through grammar in which the grammatical elements of speech are practiced through Eurythmic movements in space Heydebrand (1966) explained

> The child should make the forms in speech for doing words and for nouns A line which runs forward awakens a different feeling from a curve running backwards Through such forms which are the expression of the essential nature of the word the child grasps the grammatical element of the language, not only with his head,

> but with his whole feeling and will for life (p. 25).

At this time period, geometry in Eurythmy now includes the formation and the shaping of patterns as a group, "knowing that in a square, for instance, each one is only a fourth of the whole and that they have to consider the movement of the three others in order to form the moving square shape" as in Figure 1.

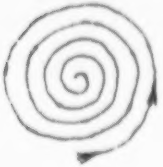
Figure 1



The children experience the feeling of a square by running the four sides, running the diagonals (which are longer than the sides), and finally running from the four corners to the center of the figure (arrows) and back to the corners again. The abstract square becomes real to the child. According to Van Oordt, "this is a cooperative effort that helps to build up a social feeling in their whole being."

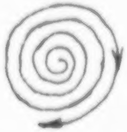
Spiral Eurythmic exercises are employed for treating certain types of developmental, personality and physical disturbances. For example, the nervous, unconcentrated child can be quieted and strengthened psychologically through the use of the ingoing spiral (See Figure 2).

Figure 2



In contrast, the outgoing spiral is used for the withdrawn, self-conscious, slow child (See Figure 3).

Figure 3



In the fifth and sixth grades, Eurythmy is the vehicle for learning the classic melodies of Schumann, Mozart, Haydn and Bach. In addition, the content and various moods of poetry are stressed and experienced by means of Eurythmic movements. More complex geometric patterns, concentration exercises, exercises in control and group Eurythmic forms are practiced with the purpose of not only learning the subject, but to harmonize motor-movement, feeling and thought. In every school subject there is movement and motor activity.

Eurythmy, which provides a compatible medium for learning and activity, brings feeling and will power into the educational process so that children led into this element cannot remain motionless or intellectual. Intellectual learning to elementary school children is pale, passive, non-stimulating, and, in many cases, ineffective. However, learning that involves their whole being creates enthusiasm, eagerness to learn, interest and strength of character and physical body.

Since Eurythmy is a disciplined art of movement it not only is an ideal vehicle for vitalizing the learning process, making learning more concrete and practical, but it also forms the basis of a developmental motor-perceptual, body management program for all children. It helps to develop self-and space awareness, balance, coordination, a sense that the child, through carefully selected exercises, makes the effort himself/herself toward overcoming motor coordination and body management deficiencies. The physical body becomes a more responsive instrument to the mind.

There are many other aspects of Eurythmy. A description of this art of movement is highly inadequate in terms of understanding and feeling it. Seeing it and experiencing it is the only real basis for knowing it.

To become a professional Eurythmist requires four years of full time training, plus an additional year of training to become a curative Eurythmist. There are Eurythmy schools located internationally, and a list is available from the author. The two schools in the United States are:

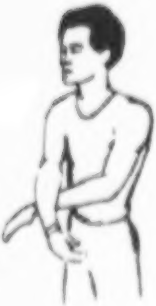
School of Eurythmy, Dorthea Mier--Artistic Director, 285 Hungry Hollow Rd., Spring Valley, NY 10977. Telephone: 914-352-5020.

Eurythmy Association of North America, RR 3 Box 76, Great Barrington, MA 01230. Telephone: 413-528-0605.

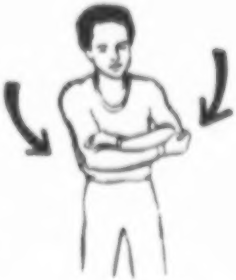
To understand Eurythmy, it is necessary to read Steiner's and other publications, visit Waldorf Schools (of which there are over 400, internationally) to see it being used, and, of course, attend an Eurythmy school.

The Eurythmic gestures not only provide a basis for learning to read and understand geometry, but also have a balancing influence on the participant. For example, the vowel movements express moods and emotions and help subtle difficulties of temperament and emotions. From a curative (therapeutic) aspect the A & B gestures enhance self concept and awareness. B facilitates the flow of secretions in the body. K and R help the digestive and metabolic processes, while L assists the respiratory process and the U gesture facilitates the blood circulation in the lower extremities (Glas, 1971). Eurythmic gestures are illustrated in Figure 4.

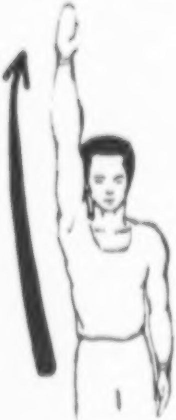
Fig. 4: Eurythmy Gestures



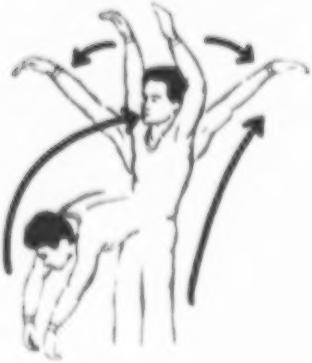
The vowel "e" movement is a crossing gesture of the arms. It can also be done with the legs.



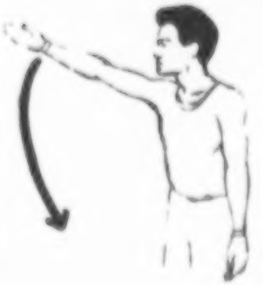
The consonant "b" movement is an embracing or cradling gesture, similar to cradling a small infant.



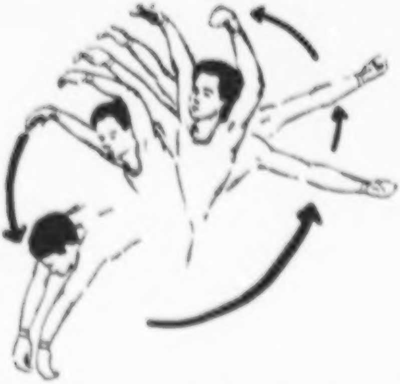
The vowel "e" movement is a thrusting (pointing) gesture with one arm pointing upward, the other downward.



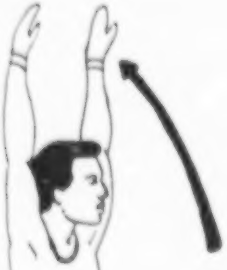
The component "T" movement is a vertical, upward gesture using both arms in unison. The motion is similar to the cascading of a water fountain, beginning at a single source at the base and dispersing at the crest in manifold arcs.



The component "k" movement is a downward, cutting gesture with one or both arms fully extended.



The consonant "r" movement is a forward rolling, rotating, or cartwheel motion of 360° with both arms.



The vowel "u" movement is an upward and/or downward gesturing of both arms held parallel, forming a "u".

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L'Eurythmie: Art du Mouvement dans les Ecoles Waldorf

L'Eurythmie est une forme de mouvement therapeutique controlle, developpee par Roudolf Steiner (1861-1925).

fondateur des Ecoles Waldorf. L'Eurythmie est utilisee dans le domaine des Arts, de l'Education et de la Medecine. Elle est employee dans le curriculum Waldorf afin de faciliter le developpement physique et psychologique des enfants, et d'intensifier les domaines de l'elocution, des qualites linguistiques, de la geometrie et de l'education physique.

Eurythmie: Kunst des Bewegens in Waldorfer Schule

Eurythmie ist eine Form von kontrollierter therapeutischer Bewegung, eitwichelt von Rudolf Steiner (1861-1925), dem Begründer der Steiner Schule. Eurythmie wird in Kunst, Erziehung und Medizin eingesetzt. Im Waldorfer Lehrplan wird sie gebraucht, um physische und psychische Entwicklung der Kinder zu erleichtern und um die Gebiete des Sprachvermögens, der Sprachkunst, der Geometrie und des Turnens zu vergrößern.

Euritmia: Arte de movimientos en las escuelas Waldorf

Euritmia es una forma controlada y terapeutica del movimiento desarrollada por Rudolf Steiner (1861-1925), el fundador de las escuelas Waldorf. La euritmia es empleada en las artes, educación y medicina. Es utilizada en el circulo Waldorf para facilitar fisica y psicologicamente el desarrollo de niños y para mejorar las areas del lenguaje, artes del lenguaje, geofisica.

J. of the Society for Accelerative Learning and Teaching, 1987, 12(1&2)

Teaching Adult Learners Using Accelerated Learning*

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Abstract. This article describes a college level course taught to adult learners using a humanistic, global, and accelerated approach. It highlights the outcomes of replacing the traditional, industrial age student-teacher relationship with one that is student-centered, and collaborative. It suggests that teachers must provide education for the whole person, by sharing themselves in a contactful, energized relationship with their students.

* * *

Introduction

In the Health Arts Bachelor's Degree program at the College of Saint Francis, "Principals of Management" is a required, four credit course lasting 15 weeks. The degree program attracts primarily nurses, and other health care professionals. Many of them have not attended school for over 20 years, and doubt their ability to achieve success in the classroom.

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*Paper presented at 12th Annual SALT Conference, April 1987, Ames IA.

These evening school students bring with them the effects of a traditional public education: they expect the teacher to be the authoritarian expert who imparts knowledge primarily through didactic lecture, and then judges students by their performance on exams. At the end of the term, the teacher assigns a letter grade designating students from the "best" to the "worst." Students expect to play the passive role of absorbing data, and regurgitating it on exams, all the while conforming to rigid rules, and in search of the "right" answer.

The 23 students in my class were all females, ranging in age from 21 to 55 years; they are employed as nurses in hospitals or nursing homes. They pursue a BA degree to meet increasing career demands of their field. A secondary goal for many is to achieve personal growth and self-actualization.

Attendance in the weekly class meeting represents a number of sacrifices for students: they must meet in the evenings after working all day, they must forego time with their families, and they must place themselves in a potentially stressful environment where competition and resourcefulness are challenged.

Goals

The 15 week class was structured around the following goals:

1) I wanted the students to be actively involved in their own education, to see themselves as partners with me, and to have an experience of success in the classroom.
2) I wanted them to see management from a global perspective, and to understand the impact

of the Information Age on management practices, and its implications for the future.

3) I wanted the students to be empowered as women, to recognize and appreciate the unique strengths that women bring to the workplace.

Methods

The methods applied to teaching the course included:

a) a pre-class letter of introduction greeting the students, instilling energy and enthusiasm for the upcoming class

b) distributing copies of the Final Exam on the first night of class to firmly convey my belief in the goal of true education to draw out of students what they already know, and to further demonstrate my relation to them as a coach and a partner in their learning discoveries

c) lecturettes lasting no more than 45 minutes, plus the use of metaphors, and story telling in the presentation of materials

d) group activities, including experiential exercises, group discussion, film-viewing, and self-assessment instruments on management style, listening skills, assertiveness, etc.

e) guest lecturers on two evenings, presenting real world issues in management

f) independent projects on subjects chosen by the students for their interest and relevance

g) a circular seating arrangement so that everyone could feel part of the whole group and be able to make eye contact with each other

h) bonding activities, including a pitch-in supper at the end of the semester, and encouragement to share special events within the group (promotions, awards, etc.)

i) "what's happening" board for posting poetry, newspaper articles, book reviews, and other items of interest to the class, especially related to women in management.

j) a brief relaxation exercise during the last 15 minutes of each class to help members make the transition from class to the return trip home, and to encourage the use of relaxation methods for enhanced health, learning, and creativity.

k) the assignment and inclusion of Toffler's *Third Wave,* and Peters and Waterman's *In Search of Excellence* as texts, as well as a standard management text.

l) the showing of the video, "The Global Brain" by Peter Russell, and "One Fine Day" by Kay Weaver.

Results

Each of the 23 students completed the class; there was an extremely low incidence of absences during the semester and a high level of enthusiasm as the semester progressed. One student remarked on the last night of class that she had been "depressed" during the day as she realized that we would no longer be meeting on Thursday nights and that the semester was at an end. No student achieved below a B grade level for the course as a result of their participation, creativity, and thorough understanding of the material presented.

One clear demonstration of the enthusiasm level were the 12 different independent projects presented in class; they covered a multitude of topics, including: Women in the Media, The Art of Listening, Management with Enhanced Perception, Androgyny in Management, Motivation and Leadership, and Selling Yourself in Today's Market. While some students presented by themselves, others worked in collaborative pairs, all of them chose topics based on their genuine desire to explore such areas. Many of the presentations showed great creativity; one team's project was in the form of an original skit, another was a video tape made of the subject, and another combined a video with music and a decorated cake that spelled out "Motivation."

Three of the students subsequently accepted promotions into management at their place of employment, another three attended a weekend retreat for women that I co-led during the month after the semester closed. Two of the women left nursing, and began actively networking into new careers, and, finally, several students were responsible for recruiting me as a presenter at a statewide occupational health nurses conference, and at a mental health association workshop for women. Perhaps one of the most pleasant experiences for me occurred towards the end of the semester, when students discovered it was my birthday, and they sent me flowers with a card inscribed "To our mentor with Thanksgiving on your birthday." I have had letters and phone calls or personal visits from several of the students since the class met last, and have enjoyed the continuing contact.

The following is a sample of student evaluations:

"The entire class was a study in leading people by using new age management principals. . . . The class was participatory, student-oriented, you shared all the information (some of which we co-created). There was diversity, flexibility, and cooperation. We were empowered to be creative and take charge of our learning. A picture is worth a 1,000 words, and you painted one that I will remember. Bravo!"

"This course has given me more self-confidence and has made me realize that there are other ways to manage people besides the hospital's way. This course has encouraged me to grow. . . . If I were to manage, I believe I would be much less authoritarian than I would have been before. I feel I would be more respectful of other human beings and their thoughts and dreams."

"The relaxation exercises I loved! I'm a person who *never* relaxes, and I just loved learning how to do that, let go and learn so easily."

"This class has given me confidence in knowing that I can succeed in college. . . . I like one-on-one teaching. . . . I can see how the world has shrunk and continues to do so with the wake and explosion of the New Age. It's exciting to know I can live to be a part of it, to see the transition. Thank you for making this class fun for me."

"This course is the first one I've taken that I felt comfortable and truly receptive to feedback. Giving the independent project increased my communication skills because I was able to get verbal and written feedback which was very helpful."

"I have learned one's personal and professional life are closely interwoven. A person who feels good about herself is more likely to be successful in a professional managerial role."

"Self-esteem is the most important value I have obtained. In spite of this being a terrifying time in history, this class gave me the greatest gift of all -- and that is HOPE!"

By giving a presentation to the class on the subject I find very interesting and worthwhile, I found that I could easily express my ideas and feelings. The meditation helped me to *believe* I could do it, but I think that the key was that I felt *what* I had to say was worth hearing. Possibly, if I could see my own ideas as a bit more worthwhile, I'd have no trouble expressing them. A flash of insight!

Discussion

Accelerated learning represents much more than a method or strategies for helping people learn quickly. Its most basic premise is to create a learning environment in which persons can be fully engaged emotionally, intellectually, and spiritually. It reaches the whole person in the context of a team where teacher and student are equal partners. Towards this goal, the student's comfort, confidence level, and ideas are respected and paramount in importance to the teacher. It is a caring relationship.

Adult learners have special needs: the demand upon their time and energy levels are often great. Accelerated learning is an especially attractive approach for this population, given its attention to a relaxed atmosphere in the classroom and its promotion of easy learning.

In addition, nurses are a unique group of students, and their long history of service has not demanded a college education in the past. Indeed, three year nursing programs were considered the premier method of training. Over the past decade, however, pressures have been exerted to require at least a BA degree in order to meet hospital administration policies, and the American Nurses Association standards. While younger nursing students attend degree programs during the day on a full-time basis, many older nurses must work full-time and go to school in the evenings. They must juggle the roles of nurse, homemaker, parent, and student. School, for these individuals, is one more burden to be borne in a fast-moving world.

Furthermore, nurse-managers are struggling to achieve greater autonomy in decision-making, and more respect from physicians and hospital administrations.

To teach a course on management to these students without taking into account these issues and conditions would be ineffective. Also, it is important for students to recognize the 'Big Picture', and to understand how the dramatic changes in nursing are happening elsewhere. Health care, after all, does not exist in a vacuum; what goes on there is subject to all the outside influences that occur within a shifting culture, and an increasingly global economy.

A humanistic orientation toward teaching, in combination with accelerated learning techniques is a powerful approach to meeting the needs of contemporary students. In this mode, teachers can work in concert with students to capture information, make it fun to learn, create a challenging yet relaxed atmosphere, and make the connection to the real world that the student works in daily.

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Enseigner aux eleves-adultes en utilisant la methode acceleree

Cet article decrit un cours enseigne a des adultes -au niveau de hautes etudes - avec l'emploi d'une methode humaine globale et acceleree. L'article met en lumiere les resultats obtenus en remplaçant le traditionnel rapport professeur-eleve de l'ere industrielle par un rapport de collaboration, centre essentiellement sur l'eleve. L'article evoque l'idee qu'il est tres important que les enseignants entourent l'eleve dans son entite et qu'ils prennent part a l'accomplissement de leur but en creant un rapport energetique et riche en contact humain avec leurs eleves.

Erwachsene Schuler werden gelehrt, das beschleunigende Lernen zu gebrauchen

Dieser Artikel beschreibt einen Universitatskurs fur Erwachsene, der mit humanistischer, globaler und beschleunigender Methode gelehrt wurde. Die Betonung

liegt auf dem Ersetzen einer aus dem Industriezeitalter traditionellen Schüler-Lehrer Beziehung durch eine, die Schüler-konzentriert und zusammenarbeitend ist. Es wird vorgeschlagen, daß der Lehrer eine Ausbildung der ganzen Person festsetze, indem er selbst an einer kontakt- und energievollen Beziehung mit seinen Schülern teilnimmt.

Enseñando a adultos aprendices utilizando Aprendizaje Acelerado

Este articulo describe un curso a nivel universitario en lo cual enseñaron a adultos aprendices utilizando humanistico global, y acercamiento acelerado. Es como si altas luces de afuera vienieran a reemplazar lo tradicional, la edad industrial del estudiante-maestro y la relacion con el estudiante-centro, y colaboracion. Esto sugiere al maestro que debe proporcionar educacion para la persona en si y compartir con ellos mismos en un contacto lleno y energizado en la relacion con sus estudiantes.

of the Society for Accelerative Learning and Teaching, 1987, 12(1&2)

Music as Mnemonic Device in Second Language Learning*

Linda Dejin Xia and Loren Alexander
Kansas State University

Abstract. This study is based on a ten-week Chinese musical program to teach 34 American fourth graders in a local elementary class to learn Chinese conversation. The course was divided into 20 sessions with 45 minutes for each session. The experiment investigates the application of mnemonic principles such as imagery, chunking, serial learning, association, context and rhyming in musical TPR, language songs and imagery music. Qualitative outcomes of the study show positive effects on learning motivation, language acquisition, creative expression and learning retention.

* * *

Introduction

The Chinese language has generally been regarded as the most difficult foreign language by many Americans. Despite a common attitude that learning Chinese is very difficult, the statistics also indicate objectively that to reach the same level of language proficiency, it takes 2-3 times longer in the study of Chinese than of the European languages (Omaggio, 1986). However, the fact that music is a daily experience for most people regardless of age, sex or social background gives credibility to its significance for language learning. Since Lozanov first used Baroque music to create conditions for relaxation and subconscious learning with adult learners, the relaxing and soothing effects of music have been adapted to students of any age at any level of second language proficiency (Lozanov, 1978, Schuster & Gritton, 1985; Schaefer, 1980; and Bancroft, 1982). If one compares musical tempo with speed of speech, rhythm with cadence, melody with intonation, and lyrics with written text, one will find that music and human language share many common aspects (See Appendix). It is interesting to see that these dynamic units of music can be used to their best advantage as a springboard to overcome both psychological and pedagogical barriers in second language learning.

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* Paper presented at the 1987 SALT Conference in Ames, Iowa.

Jakobson (1980) categorizes language into two aspects, the intellectual language to the left hemisphere and the emotional language to the right hemisphere. Based on his neurolinguistic research on subjects with cerebral lesions, he discovered that though the speech components depend on the left brain, all other audible stimuli such as environmental noises, intonation, coughing, laughing, yawning and so on, are tied to the right side of the brain. Paivio (1979) pointed out that information is processed by two mental systems: the imagery system, which stores information in nonverbal memory representing spatially organized events, concrete objects, and imagination; and the verbal system, processes with either auditory or visual images of words. Although the verbal mediator operates in a more nearly symbolic and linear level, Paivio believes that memory images are a crucial mediating mechanism for verbal expression. Since traditional second language teaching approaches have often been preoccupied solely with verbal learning, music can certainly integrate the emotional components into the linguistic skills to increase learning retention.

Introduction of the Study

Subjects for this study were 34 local elementary fifth graders, ages 10 to 11. The program consisted of ten musical lessons, which were taught in 20 sessions. Songs and music used in this program to enhance language instruction were composed, sung or played (on piano) by one of the authors (Linda Xia). During the whole course, spoken language instruction was comprehended mainly through pictures, nonverbal cues or contexts instead of using the first language translation. Listening comprehension, oral production and motivational aspects were evaluated at the conclusion of the course through a picture multiple choice test, memorization game, and a student feedback questionnaire. The purpose of the study was to investigate if different strategies of using music can lower psychological barriers in second language acquisition and accelerate learning.

The following is a discussion of three self-designed musical projects in this program.

Language Song

Language songs used in this program were made from dialog, rhyme, or texts consisting of five or six sentences. The melodic lines in language songs are generally based on the intonation of natural speech, as are the rhythmic patterns. Another feature of language song is its application of imitative words and repetition, such as Little dogs, little dogs, bark bark bark bark under the tree, little cats, little cats, miao miao miao miao by the tree, little birds, little birds, twitter twitter twitter twitter on the tree

Generally Linda Xia used three steps to teach a language song.

(1) Achieve comprehension of the lyrics through various comprehensible channels -- contexts, pictures or nonverbal cues.

(2) Rhythmic reading of the lyrics with exactly the same rhythmic pattern that is going to appear in the song.

(3) Singing. Add melodic lines to the lyrics. The singing could be repeated 4-5 times until the students can sing in chorus without the help of the instructor. Most of the songs are combined with acting during singing. Generally one or two songs are taught for each session and all the songs will be reviewed in the same steps: comprehension, rhythmic reading and singing.

Discussion and Results

Eight language songs were taught during the whole course. In response to one of the questions in the questionnaire at the conclusion of the class: "Music and songs helped me a lot to memorize Chinese characters", 33 students out of 34 marked "yes" and only one student marked "undecided". Responding to another question in the same questionnaire: "I can sing more than five Chinese songs now", 25 students answered "yes", six students answered "undecided", and only three students out of thirty-four answered "no". A language song also helped lessen the boredom of repetition by building up a communicative atmosphere. It was noticed that the greeting song "Hello" was repeated six times in one session and "Hello" in Chinese was sung at least 24 times. However, it is significant that there was not the least sense of boredom indicated on the part of the learners.

Musical TPR

Total Physical Response (TPR) is a teaching method focusing on listening comprehension by eliciting physical response from the listeners (Asher, 1977). Musical TPR uses dramatic changes of tempo, rhythmic pattern and intensity in music to suggest physical movements together with oral commands. Tempo and rhythm are two key factors in musical TPR, however, a dramatic change of intensity can also change the mood of the action. Musical TPR can be used for isolated commands as well as for nonverbal story performance. In musical TPR stories, students merely react to the music and the narration by physical movements, such as acting the story "Race between Tortoise and Rabbit."

Discussion and Results

It is believed that TPR activity involves primarily the use of the right hemisphere of the brain, though at the beginning stage the left brain is activated in reasoning and comprehension. With this logic, music combined with TPR activity may further emphasize the functioning of the right brain and thus increases relaxation, subconscious learning, imagination and emotional involvement. One student wrote in her diary about musical TPR: "Today, we played a neat game. I wish we could play it more." Another student remarked: "I think the music is helpful. I could do better when you (Linda Xia) mixed your order with the music." Again written observations on musical TPR shows that the students succeeded in responding to the melodic suggestion of the music while they failed to do so to the oral commands.

Imagery Music

Imagery music is used in the background for story telling or vocabulary introduction or skit performance. To present a vivid image of a certain character, such as a boy, a dog or a bird, is to find out the right pitch and volume (high or low, loud or soft), and the typical speed and rhythmic pattern to indicate the character's physical movements or personality, then create a musical theme or imagery by combining the melody with the above factors. For example, the image of a bird can be reproduced on piano by playing a trill in the higher octaves, and the dog can be created by playing some inharmonious chords in the lower octaves. Delicate little animals such as the squirrel or the lamb are usually played softly; violent creatures such as the lion, the wolf or the monster are often represented by rough and heavy touches on the keys.

Discussion and Results

Imagery music not only enriches the environment for language acquisition, but also acts as an indirect channel to convey language instruction in a suggestive way. In a musical story, imagery music vivifies the characters, provides food for the students' imagination, and thus encourages greater student participation. It is interesting to see that when the character's leitmotiv was played with the narration for the second or the third time, the students naturally joined the activity by imitating the barking or crawling of the dog, or straining their voice to talk like a bird. One student said after the class that the language was hard, but music had made it easy.

Summary and Discussion

Through using the soothing Baroque music in Suggestopedia, and the suggestive effects in musical Total Physical Response, imagery, music and language songs are correlated closely with the meaning of words. While relaxation in Suggestopedia is achieved through a certain period of "Pseudopassivity" (Lozanov, 1978), a stress-free atmosphere in the above musical projects was acquired through active stimulation of the melodic images. In an informal memorization game (say the picture objects in Chinese) to test the retention of 30 objects learned in this program, the retention rate was as high as 85 per cent.

It is amazing to see that the mnemonics which have been practiced for many centuries are working in harmony with the recent holistic brain approach in this musical program. It is suggested in numerous memory studies that subjects gain accelerated learning speed when they are in a better mood for learning, when abstract and unfamiliar words are associated with concrete and familiar things, when vocabulary is presented in meaningful contexts, when isolated words are neatly grouped into chunks or arranged in serials, when (actual or imaginary) physical movements are related with language instruction, and when imagery is used to assist comprehension (Higbee, 1977; Atkinson, 1975; Dean, 1983; Gadzella, 1975; & Halpern, 1984). Obviously, the suggestive effects of music, or rather the suggestive music in language songs, musical TPR and imagery music can play an active role in fulfilling the following tasks:

1. *To Lower Anxiety:* The aesthetic effects in music and songs, rather than their soothing effect, create learning enjoyment, active participation and motivation.
2. *To Enhance Physical Response:* Tempo, intensity and rhythmic pattern, which are combined together as a dynamic portion in musical TPR, add imagination and excitement in language learning.
3. *To Suggest Context:* The emotional and imaginative force of music can indicate a specific theme or a certain atmosphere, which creates an assimilated and contextual learning environment in language acquisition.

4. *To Associate:* When lyrics are sung with music, new and unfamiliar words would become associated with pleasant melodic expressions. The melody can later on serve as a cue for lyric memorization.
5. *To Organize:* Discrete sentences are chunked into a pattern or flowing thought with the melodic continuity. People recite songs better than stories as the information is processed in a more organized manner and they more easily retrieve the information through the key of chunking and serial learning.
6. *To Activate the Right Brain:* When language instruction is taught in the form of music, the imagery system as well as the verbal system is activated. The suggestive effects of music on imagery, physical movements, context and emotional atmosphere obviously tap the rich mental reserve of the right brain. Thus more accelerated learning acquisition and learning retention can be accomplished.

Although the impact of music is probably too subtle to assess at various psychological levels, findings of this study reveal a close relationship between suggestive effects of music and accelerated learning retention. When music and songs are used popularly in the second language classroom, the science of music in second language learning and teaching will surely become an area of more intensive research.

* * * * * *

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*** *** ***

Appendix

Basic Components of Music Relative to Language

	MUSIC		LANGUAGE
1.	**Musical Note:** Harmonious sound, denoting tones of the 12-tone scale of European origin.	1.	**Linguistic Unit:** Basic linguistic sound produced by the human voice.
2.	**Quality:** Variance of tone color produced by different instruments or people.	2.	**Quality:** Pitch and color of the human voice which varies from person to person.
3.	**Melody:** A group of musical notes in a succession to express a certain thought.	3.	**Intonation:** Change of stress and pitch in oral communication in order to be expressive.
4.	**Tempo:** Speed of beat in a musical piece.	4.	**Speed of Speech:** The rate at which a person speaks.
5.	**Rhythm:** A group of tones organized in a recurring time pattern.	5.	**Cadence:** Pause and change of speed in expression.
6.	**Lyric:** Words or sentences sung harmoniously with melodic lines, usually rhymed.	6.	**Sentences:** Words combined linguistically to express thought.
7.	**Imagery:** Musical notes grouped in certain rhythmic and melodic patterns to present musical ideas.	7.	**Word Description:** words or sentences constructed to describe a certain object, thought, feeling or situation.
8.	**Musical Theme:** Certain musical style to suggest specific atmosphere or setting.	8.	**Context:** A series of sentences incorporated to suggest a specific situation.
9.	**Mood:** The emotional part of a musical peice communicated by melody in particular.	9.	**Way of Expression:** Choice of words or use of tones to indicate the state of mind and feeling.
10.	**Intensity:** Loudness or softness of the acoustic effects in musical performance.	10.	**Volume of Voice:** The amount of sound a person uses in his/her speech.

La musique: moyen mnemonique dans l'etude d'une seconde langue

Cette recherche est basee sur un programme de musique chinoise d'une duree de 10 semaines aux fins d'enseigner la Conversation en Langue Chinoise a 34 jeunes écoliers americains de 9eme aupres d'une ecole primaire locale. Le cours fut reparti en 20 sessions de 45 minutes chacune. L'experience permit d'examiner en details les resultats de l'application de principes mnemoniques tels l'image, l'arrangement partiel, l'etude en serie, l'association, le contexte et la rime dans le TPR musical, les chansons en langue-cible et la musique imagee. Les resultats qualitatifs de cette experience revelent a quel point la motivation des eleves, leur acquisition de la nouvelle langue, l'expression de leur creativite et leur abilite a retenir la matiere repondent affirmativement aux effets positifs de la musique.

Musik als Gedächtnishilfe beim Fremdspracheunterricht

Diese Studie basiert auf einem zehnwöchigen Chinesisch-Musikprogramm, 34 amerikanischen Viertikläßlern in einer lokalen Grundschule Konversation auf Chinesisch beizubringen. Der Kurs war in 20 Sirzungen, je 45 Minuten, unterteilt. Der Experiment erforschte die Anwendung von mnemotischen Prinzipien wie Bildersprache, Klumpen- und Setielernen, Assoziationen, Kontext und Reim bie musikalischem TPR (physisches Erwidern), Sprachlieder und bildliche Musik. Qualitative Ergebnisse dieser Studie zeigen positive Wirkungen auf Lernmotivation, Sprachaneignung, kreativen Ausdruck und Behalten.

Musica como estratagema mnemónica en el aprendizaje de un segundo idioma

Este estudio está basado en diez-semanas de un programa musical Chino para enseñar a 34 Americanos en una escuela elemental local para aprender conversación China. El curso fué dividido en 20 sesiones con 45 minutos para cada sesión. El experimento investigó la aplicacion de principios mnemónicos tales como imaginacion, aprendizaje seriado, asociaciones, concursos, y ritmo en musica TPR (con actividades psicomotrices), canciones en el idioma e imaginación con música. La cualidad viene del estudio y demuestra efectos positivos como motivacion en el aprendizaje, adquisicion del idioma, expresión creativa y retención en el aprendizaje.

The Magic Feather:
The Truth about Special Education

by Lori and Bill Granger
EP Dutton, New York, NY 1986, pp 259 $16.95

Reviewed by Earl J. Ogletree
Chicago State University, Chicago, Illinois

Are too many children being labeled as handicapped? According to recent articles, such as "State Suspicious of Handicapped Label on Students," that appeared in the October 7, 1984 issue of the *Chicago Tribune,* the reported disproportion of minority children in special education programs (The School-age Handicapped, Contract Report, U.S. Dept. of Educ., 1985), related studies and the current book, *The Magic Feather......,* there appears to be an "overkill" in special education placements.

Some may question the objectivity of *The Magic Feather......* written by the authors who revolted against the public school system when their child Alex was mislabeled as having an IQ of 47 and a "learning disability." Alex's parents were told by school psychologists administering the tests that the test results were incontrovertible, and Alex would have to be placed in a special education classroom, despite the fact that the child could read several years above his grade level--and proved it. The book is not only a story of their battle to save their child from the "Special Ed Trap" and criticism of their nonscientific basis of special education as a field of knowledge, but to help parents who face real problems with the schools and their children.

Bill and Lori Granger, although involved in the emotional turmoil of fighting for the future of Alex's education and life, are well qualified to write this investigative-reported book. Bill is a columnist for the *Chicago Tribune* and the author of 16 novels and a contributor to national journals. Lori Granger is a teacher, writer, newspaper editor, political consultant and a doctoral candidate at the University of Chicago. The proselytizing somewhat biased narrative is balanced by statistical data, interviews and expert testimony. The authors appear to make a damning case against special education and its overuse.

1. Nearly 11 percent of the nation's school children are currently confined in special education, while only 3 percent, at best of all school-age children might benefit from special education placement.
2. More than one million school children are classified as mildly handicapped."--learning disabled, mildly retarded or emotionally disturbed.
3. National surveys show teachers identify nearly 60 percent of their students as needing special or remedial help.
4. According to the National Center for Education Statistics, teachers identify a little over 20 percent of their students as being handicapped and in need of special education.
5. Racial and ethnic segregation are enforced by using special education programs. For example, current national data show blacks make up only 16 percent of the students in the U.S., but they account for 39 percent of the students in the educable mentally retarded population. In 1980 a parent group in Chicago protested the misplacement of over 7,000 children in Special Ed classes and also found that black children were twice as likely to be placed in such classes as white children. A 1985 U.S. Department of Education report concluded, "The proportion of blacks in schools for seriously emo-

tionally disturbed students is higher by two thirds to three-quarters than the comparable proportions of whites.

6. Since the passage of PL 94-142 (The Special Education Law), the number of children classified as handicapped has increased dramatically.

The authors believe that "there is something wrong with a system that increasingly justifies its growing failure rate (54 percent of Chicago public school students dropout before the twelfth grade) by calling more and more children mentally defective." They also claim there is a profit motive behind the rush to classify in that for each child successfully placed in a special education program, a school district receives four thousand dollars in government monies. The Grangers support this assertion by their experience. They took their son, Alex, to an Evanston, Illinois hospital for independent testing, for which they paid, hoping to get a more honest and objective appraisal. They relate,

> We still remember the happy psychologists who had cried 'I've got one! I've got one!' We discovered that the local school district would gain more that $4,000 in salaries, contracts and supplies, if Alex were placed in full-time special education.

The Grangers blame the misdiagnosis of children as mental and behavior misfits and the disproportionate assignment of the Hispanic and Black children to special education programs to the nebulous speculations as to what constitutes a special education child or program. No one knows what a "learning disabled" child is, and the difference between him and another called "emotionally disturbed" or "retarded" may be non-existent. What the authors learned via investigative reporting is "there is no accepted body of scientific knowledge that has found the causes of school-based problems--or agrees on the cures." They claim that educators who say they are basing their diagnosis or conclusions about a child on scientific findings are lying. They also adamantly assert that what labeled special education children have in common is that the regular classroom teacher rejects them. "They do not fit in, and their teachers did not like them."

Another reason for the mislabeling, according to the writers, is how retardation or disability is measured. They claim "Very imprecisely." Instead of getting information from parents' real descriptions of the child's out-of-school behavior, educators rely on the old "standbys," the IQ tests and teachers' judgments. This increased reliance on testing and labeling, according to Gerald Coles of the Rutgers Medical School in *Harvard Education Review*, is that,

> "By positing biological bases for learning problems, the responsibility for failure is taken from the schools, communities, and other institutions and is put squarely on the back, or rather within the head, of the child . . . It is the classic example of blaming the victim."

Bill Granger vented his frustration with Special Education in his weekly *Tribune* column. As expected he attracted supporters (parents, teachers, principals to school-system superintendents and organizations) as well as detractors who attempted to get him fired from his column. To Alex's good fortune Dr. Daniel Hast, an optometrist who read the column, contacted the Grangers, stating he could help the child. He found that Alex had a lazy eye that prevented him from focusing both eyes in unison. Eye glasses and therapy corrected the problem. Alex's IQ, reading scores, attention span, speech and handwriting improved rapidly. The Granger's received a stream of testimonials from parents and educators who had similar experiences in which the basis of seemingly diagnosed mental disabilities turned out to be visual, hearing or medical problems. Thousands of parents and educators shared their own problems with special education with the Grangers in the course of writing their book.

The Grangers are on a crusade. The intent of the book is to relate their own experiences with a misdiagnosed child, their interpretation of the biases and special problem in laymen terms, advise on what is wrong with them, and to remind parents that they are the "primary" teacher and no one is going to save their child except themselves.

Although, *The Magic Feather.....* gives only one side of the special education issue, the troubled parents' viewpoint, it makes one aware of the quality of American education and provides another view and, perhaps, a much needed evaluation of Special Education from the lay person's perspective. The Grangers' book should be read by parents, educators, psychologists and legislatures in hope that the diagnostic techniques, education and treatment of children who are different will be enhanced.

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THE JOURNAL OF THE SOCIETY FOR ACCELERATIVE LEARNING AND TEACHING

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Music and Accelerative Learning: Some Historic and Current Applications*

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Abstract.

Music has long been recognized as an art, science and form of therapy, in myth and legend. Modern scientific methods have enabled objective studies to be undertaken which show how music can exert both harmful and beneficial influences on the individual's psychological, physiological and neurological make-up. The acoustic environment, which includes music as well as other sounds, has undergone profound changes over centuries resulting in altered "soundscapes". Since musical sound has the capacity to promote well-being, which is in turn an essential pre-requisite for effective accelerative learning, then appropriate uses of musical sound need to be thoughtfully applied. This paper reviews reports of three different investigations into specific uses of music: as an aid to language discrimination in young children, as a means of alleviating laboratory-induced stress, and as a positive influence on the regulation of some functions of the autonomic nervous system.

* * *

This paper examines some ancient and evolutionary uses of music in society together with some current applications. For many people, music is an art, or science, or recreation, or perhaps even a "spiritual force", but as I hope to illustrate, it is certainly more than these things. Music has long been recognized as a "harmonizer of the spirit", as a healing and therapeutic agent and as a backdrop - often unconsciously perceived - to many aspects of daily life. In this capacity, the use of music may be planned or spontaneous, obtrusive or helpful. Music has a vital part to play in the educative process - and particularly in accelerative learning, but we need to reflect on some of its historical associations before *thoughtfully* applying it in a modern scientific manner.

There are many references from antiquity which we can peruse for reflection. Some of our sources are historians, some illustrations and relics, and some great works of literature such as the scriptures. Some examples are:

Plutarch reported that at human sacrifices in *Phoenicea,* centuries before the Christian era flutes and drums were used "so that the cries of the wailing should not reach the ears of the people" (Sendrey, 1974).

The ancient Hebrews regularized the use of song as 'enhanced speech' for religious incantations, but 'song' probably grew out of primitive speech formulae which gradually crystallized into song - the first 'tunes'. Instrumental music, on the other hand, probably began as a reaction to the motor impulses of the body; it was certainly unemotional and at its lowest stage was entirely *rhythmic* (beating thighs, stamping on the floor, use of drums, pipes and horns or trumpets (Sendrey, 1974).

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* Paper given at the SALT Conference, April 1987 in Ames, Iowa.

The Hebrews gradually developed choral and instrumental music as part of their religious life - this was called *prophesying* in the Bible, and according to the author Alfred Sendrey, must have exercised a fascinating, even hypnotic effect upon the people of those times, as evidenced by the experiences of Saul and his messengers:

> 'And Saul sent messengers to take David: and when they saw the company of the prophets prophesying, and Samuel standing as appointed over them, the Spirit of God was upon the messengers of Saul, and they also prophesied.'

Notice how 'prophets' and 'prophesying' are separable.

Another interesting Biblical reference (there are many) is to be found in the superscription of the Fifth Psalm which uses the expression: "To the chief Musician upon Nehiloth".

One scholar, Mowinckel (Sendrey, 1974), has claimed that this psalm was used specifically 'against sickness', however, it was the supposed healing power of music that accounts for many of the legendary tales throughout the centuries, perhaps David's curing of Saul's 'melancholy' by playing the harp being the most famous.

Also, we have many accounts from earliest times of the use of worksongs to relieve stress, boredom, fatigue and drudgery. Often these worksongs were in fact Psalms. Another scholar, Chrystostom, mentions some of the professions in which singing was customary because of its rhythmic regularity: nurses' rocking babies, wagoners' driving animals, vintagers' treading grapes, sailors' pulling the oars, weavers' tossing the shuttle. However, a talmudic report states:

> 'The singing of sailors and ploughmen is permitted to facilitate their work, but that of weavers is prohibited because weavers sing out of frivolity' (Schafer, 1977; p. 64).

But the Talmud also reports another use of music – the blowing of the sacred horn, the *Shofar*, at public places in hard economic times such as the decline in trade or decrease of money's buying power (i.e. inflation) (Sendrey, 1974).

The legends and achievements of Orpheus over thirteen centuries B.C. have been recognized by a modern neurologist, Schipkowensky, as those of a healer-songster 'who would tame wild beasts, that is, man's passions, by his enchanting music; move rocks, that is, reach the bottom of even the most unfeeling hearts, cure patients, and even revive the dead.' (Schipkowensky, 1977). It is interesting to speculate that at a time of comparative clinical primitiveness, the 'clinically dead' and the 'actual dead' were often not correctly identified.

In the old Olympic games dating from seven centuries B.C. music and singing accompanied the processions (Sendrey, 1974). By contrast, everyone is familiar with the music used at the modern Olympic games – for example, the playing of national anthems at the medal ceremonies.)

Incidentally, a special Greek instrument – the Aulos – a kind of double oboe – was used to accompany such sporting activities as the discus, high jump and javelin – this may be compared with the modern aerobics class, with its apparently compulsory accompaniment of beat-oriented rock-type music.

Such specifically applied use of music was also the predominating influence in the later Roman empire, during which in particular, the use of brass instruments for military and outdoor entertainment purposes was strongly developed. Again according to Sendrey (1974), 'The basic principle of Roman music is generally considered to have been *solida utilitas* - practical usefulness'.

> 'However the greatest merit for the creation and development of the musical science of the Greeks belongs to the philosophers, Plato, Aristotle and Aristoxenos. Although Plato was no expert in music he developed basic thoughts about the influence of music upon the mind and character of man, and is the originator of the doctrine of ethics in music. Aristotle's conception, was that music possessed, by its very nature, the faculty to influence the soul of the listener in a specific way. (And it was widely held that) by its power of healing, music could also achieve moral purification and recovery (or *katharsis*)' (p 380).

I will touch on some contemporary aspects a little later.

All of the examples chosen for this brief survey illustrate one or more of these ancient uses of music –

(1) to mask other sounds,
(2) as a heightened form of speech,
(3) as a calming or soothing agent,
(4) as a therapeutic agent,

(5) as an accompaniment to other activity such as work, religious or secular ritual, and recreative activity such as sport.

A most enlightening approach to the history and ethics of environmental sounds and music has been made by the author Murray Schafer in his book *The Tuning of the World*, (1977). In this fascinating account Schafer has surveyed the history of environmental sounds from antiquity to the present day, with conclusions drawn from a number of researchers involved in an international study called the World Soundscape Project. The word "Soundscape" is here analogous to "landscape" and refers to the sounds - both natural and artificial - pleasant and unpleasant, in the changing social environments over the centuries. Schafer reminds us of the significance of many sounds - some now extinct - which provide a backdrop to daily living - and profoundly influence the community. Some examples include church bells, military bugles and drums, the posthorn, the fog-horn, the curfew bell, the cathedral organ, folk music and dancing, street musicians and songs of work - there are obviously many others. All of these sounds in the Soundscape carried emotional and aesthetic messages which provided a backdrop to daily life.

Most of these sounds were affected in turn by the change from rural to urban life - some disappeared and new ones were created. For example, the advent of the industrial revolution brought a new range of mechanical sounds - the clatter of machinery, conveyor belts, steam engines and whistles, jacks and hammers. The ambient noise level rose (and incidentally remains high today.) Against this backdrop it was no coincidence that worksongs and street musicians gradually faded away, and that music gradually moved indoors.

As Lewis Mumford (1934) put it in *Technics and Civilization,* 'Labor was orchestrated by the number of revolutions per minute, rather than the rhythm of song or chant or tattoo.' Not surprisingly, the first of many subsequent laws enforcing noise abatement were enacted (Schafer, 1977).

By far the most important influence on environmental music and sound came in the nineteenth century - in what Schafer calls 'The Electric Revolution'. Its gradual consequences led to the electric cell, the dynamo and the electric arc light, the telegraph, telephone, phonograph and radio (later, the tape recorder). Radio was particularly revolutionary; never before had sound disappeared across space to reappear again at a distance. As Schafer says: "The community, which had previously been defined by its bell or temple gong, was now defined by its local transmitter" (p. 92). And "the radio has actually become the birdsong of modern life, the 'natural' soundscape, excluding the inimical forces from outside" (p. 93).

Of course the electric revolution has brought many more advantages than disadvantages; for example, we can listen to music of our choice anywhere and at any time - though sometimes there is a small price to pay in the way of some discomfort.

So with the increase in variety and volume of unwanted noise modern acoustic engineers have turned their attention to methods of using sound to mask other sound, and to using music as a painkiller - what Schafer calls *audio-analgesia.* "The use of audio-analgesia extends in modern life from its original use in the dental chair and wired background music in hotels, offices, restaurants and many other public places" (p.96) including, I may add, the cabin in aircraft prior to take-off and after a successful landing!

It may appear that objections to the abuse of music in this and other ways are trivial and that such music helps to 'brighten up' the environment, however the abuse of this practice lead, in 1969 in Paris, to the following resolution being passed unanimously by the General Assembly of the International Music Council of UNESCO (Schafer, 1977).

> "We denounce unanimously the intolerable infringement of individual freedom and of the right of everyone to silence, because of the abusive use, in private and public places, of recorded or broadcast music. We ask the Executive Committee of the IMC to initiate a study from all angles – medical, scientific and juridical – without overlooking its artistic and educational aspects, and with a view to proposing to UNESCO, and to the proper authorities everywhere, measures calculated to put an end to this abuse." (p.97)

Since then acoustical engineers have come up with a kind of solution – the use of 'white noise' to mask distracting sound, the sort of sound which is conveniently emitted from air conditioners and heating furnaces. Sometimes this 'white noise' is amplified if the natural source is not loud enough. A memorandum from one firm of acoustic engineers ran as follows: *'Music Library:* There should be enough mechanical noise to mask page turning and foot movement sounds'. Its proponents prefer to call it 'acoustic perfume' but I think a more accurate term is 'acoustic deodorant'.

What are we to do? How are we to overcome these obstacles and create a more satisfying musical soundscape? Well, there are a number of things that can be done. Firstly, we can attempt to find out how and what music alleviates stress, since the rise in volume of ambient noise is one of the unconscious stress-increasing factors; secondly we can consciously attempt to apply musical sound – even in an elementary way – in the field of education, and thirdly, we can conduct scientific experiments to discover how suitable music can aid our psychological and physiological well-being. All of these measures have obvious implications for accelerative learning, and in the final part of this paper I'd like to illustrate each of these strategies through three research reports presented in the last ten years or so. Before doing so, however, it will be helpful to look briefly at the classification of sounds.

According to Schafer sounds may be classified in several ways:

1. According to their physical characteristics . . . Acoustics
2. According to the way in which they are perceived . . . Psychoacoustics
3. According to their function and meaning . . . Semiotics and Semantics
4. According to their emotional or affective qualities . . . Aesthetics

In the first of the research reports I mentioned previously, an interesting laboratory experiment was conducted on 120 volunteer male students (not majoring in music) at Florida State University. This study, by Judith Jellison, entitled 'The Effect of Music on Autonomic Stress Responses and Verbal Reports' (1977), sought to demonstrate the effects of music, measured physiologically, on the volunteers who were placed in a stress situation. There were 4 groups of 30 volunteers: a control group, 2 groups given music stimuli and 1 group given 'white noise'. The two music stimuli were labelled 'exciting' or 'calming' due to the influence of previous research, and they were the first two minutes of the fourth movement of Dvorak's 'New World' Symphony, and the first two minutes of Bach's 'Air on a G-String'. The sound segment for the 'white noise' stimulus consisted of two minutes of intermodulatory 'white noise' recorded from the FM broadcast band. The control group was tested in silence.

The experimental design was as follows:

1. All subjects had shock electrodes fitted to the fourth and fifth fingers of the left hand and were individually tested for delivery of a shock which was set at a 'pain' intensity for all subjects and treatments.
2. All subjects were also 'wired up' to record changes in Blood Pressure, Galvanic Skin Response (changes to skin resistance in the fingers) and Finger Pulse Volume.
3. All four groups, including the silence control group then received 4 treatment-shock conditions over a 12-minute test period, and their physiological responses were recorded.
4. At the end of the session all subjects provided a verbal report; these were assessed by the State Anxiety scale of the State-Trait Anxiety Inventory - a psychology test developed in 1969.

The results showed some inconsistencies in the average changes for physiological responses, due for example to the habituation effect of the electric shocks, and the 'exciting' Dvorak music in having the effect of a smaller change in Galvanic Skin Response. However the verbal reports were very revealing. It was found that:

1. Both music stimuli treatments (Dvorak and Bach) resulted in significant decreases in Anxiety-State scores suggesting a reduction of verbal stress responses.
2. The music stimuli groups did not differ significantly in the reduction of verbal stress responses.
3. The 'white noise' treatment resulted in significant *increases* in Anxiety-State scores, suggesting an increase in verbal stress responses.
4. The 'white noise' group was significantly different from both of the music stimuli groups; the scores of the 'white noise' group indicated significant *increases* in verbal stress responses; the scores of the music stimuli groups indicated significant *decreases*.

Apart from anything else, this study, I think, should give us pause to consider the desirability of continued use of background 'white noise' as an 'acoustic deodorant' in modern buildings and other public places.

A simple but illuminating study entitled 'The Use of Music Stimuli in Teaching Language Discrimination' by Clifford Madsen, Charles Madsen Jr. and Donald Michel, at Florida State University (1977) shows that through the systematic application of music and tones, language discrimination for those children with discrimination disabilities can be improved. The use of simple tones paired with the words was shown to increase significantly the child's ability to discriminate between words which are similar in sound (such as 'web-wed'). This study was based on the rationale that discrimination capacity for tones and melodies develops prior to language discrimination.

The carefully controlled study involved 216 black 5-year-olds from culturally different backgrounds who had learning problems with standard English. Using 40 paired words from a standard text the children were tested before and after the music treatment sessions and a story was read which incorporated all the words from the text. There were five music treatment sessions over two weeks. For the test words which were similar, a different sound was used for each, if the words were the same sounding, the same sound was used. The musical sounds were designed to facilitate discrimination, not to serve as discriminative stimuli, and so the tonal cues were randomly recorded to occur .5 second before the word or .5 second after the word.

In addition to this material the stories using all the words were set to music and sung by a musically trained teacher. So the four treatments over five sessions in the two weeks were as follows:

1. Repetition of words
2. Repetition of words plus music tones
3. Stories
4. Stories plus music

For the second treatment the volume of sound of the music was gradually reduced to zero by the fifth session. The control groups used for comparison were given only treatments one and three over the test period.

The researchers concluded that:

1. Problems of forgetting are not the same with musical melodies as they are with words.
2. It would seem that if the primary ability in learning to read standard English involves discrimination between language sounds, then merely talking or reading to the child with a different backgound is inadequate and inefficient.

Table 1. Number of words discriminated vs. experimental musical treatment (Madsen, Madsen & Michel, 1977)

	Pretest	*Posttest*	*Difference*
Repetition plus tones (n=35)	12.8	19.0	6.2
Stories plus melodies (n=34)	16.0	22.1	6.1
Contact control (n=35)	11.7	13.9	2.2
Verbal repetitions (n=33)	13.9	16.1	2.2
Stories (n=33)	16.9	17.1	0.2

3. Perhaps the next step is to devise a beginning reading technology which employs music in a systematic procedure.

The final research report, which is really a collection of separate reports compiled after a series of laboratory experiments, is entitled 'Music, Emotion and Autonomic Function', by Harrer and Harrer (1977) from the Department of Psychology at the University of Salzburg. The effects of music on such autonomic functions as strength and frequency of pulse, muscle activity and respiration, they found, were influenced by a number of factors such as the 'tone' of the autonomic regulatory processes which in turn are affected by constitution, age, sex, mode of life, physical fitness, general state of health, or such temporary factors as fatigue, drinking alcohol or coffee, or emotional reactivity and attitudes toward music, the importance of music in the subject's life, and also upon the subject's immediate attitude towards the piece of music presented in the test situation. Some of these findings can be briefly mentioned.

This diagram illustrates some of the changes taking place when the subject listens twice to the same piece of music - the second time without emotional involvement. The interesting findings are:

1. The PGR (not rated too highly by the researchers because of difficulties of calibrating the signal, and fatigue in the response, despite being the most sensitive indicator) is shown to be markedly different.
2. Although the emotional involvement is reduced on the second learning the enjoyment of music may be just as profound, and
3. Music may lead to an autonomic reaction although the sounds are not consciously perceived, for example, in sleep and with 'background' music.

This latter finding is obviously highly significant in applications of music in accelerative learning situations.

It is also found that in some persons psychological stimuli such as stress give rise to respiratory changes predominantly, whereas in others marked circulatory or galvanic skin response alterations are elicited by the same type of stimuli.

Not surprisingly, it was also affirmed that pieces of music such as dance music or orchestral marches produced predominantly motor responses, while other types of music are more likely to elicit respiratory or cardiovascular responses.

Fig 1 Vegetative diagram

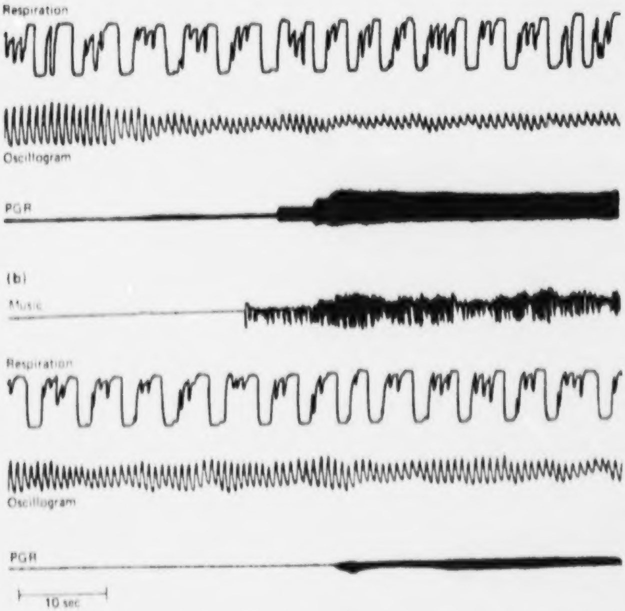

Figure 1 Vegetative Diagram, (a) with and (b) without emotional involvement.

Recordings of respiratory movements during the playing of music were particularly interesting. The next illustration is of Pneumograms of five different people while listening to the same piece of music (African drumming from Uganda).

The features here are:

A. Gradual adjustment of the respiratory rate to the gradually accelerating and temporarily slowing beat.
B. Is similar, but the respiratory rate is much slower. A 'sighing' respiration is caused by subjective fatigue.
C. Demonstrates a rate of period of respiration intermediate between the other two.
D. Is characterized by a slowing of the respiration at the period of the fastest drum beat; this type of response if found when an intrinsic biorhythm is unable to follow the extrinsic pacemaker any further, so a shift is made to a different periodic relation between the intrinsic and extrinsic rhythms.
E. More consistent and smaller rates of change.

The most interesting finding was that these individual modes of response were widely reproducible whenever the tests were repeated with the same piece of music. Such responses correspond with considerable differences in attitudes towards the drumming. In conventional or 'classical' music the inter-individual respiratory differences were less significant, and certain pieces of music elicited responses in all subjects. In reaction to pieces of music with a prominent acceleration or deceleration of the rhythm, some of the subjects showed a tendency towards a primary pulse synchronization, others tended to exhibit synchronization of the respiratory rhythm. All of these factors also have implications for music used in accelerative learning.

Fig. 2. Pneumograph of 5 Ss

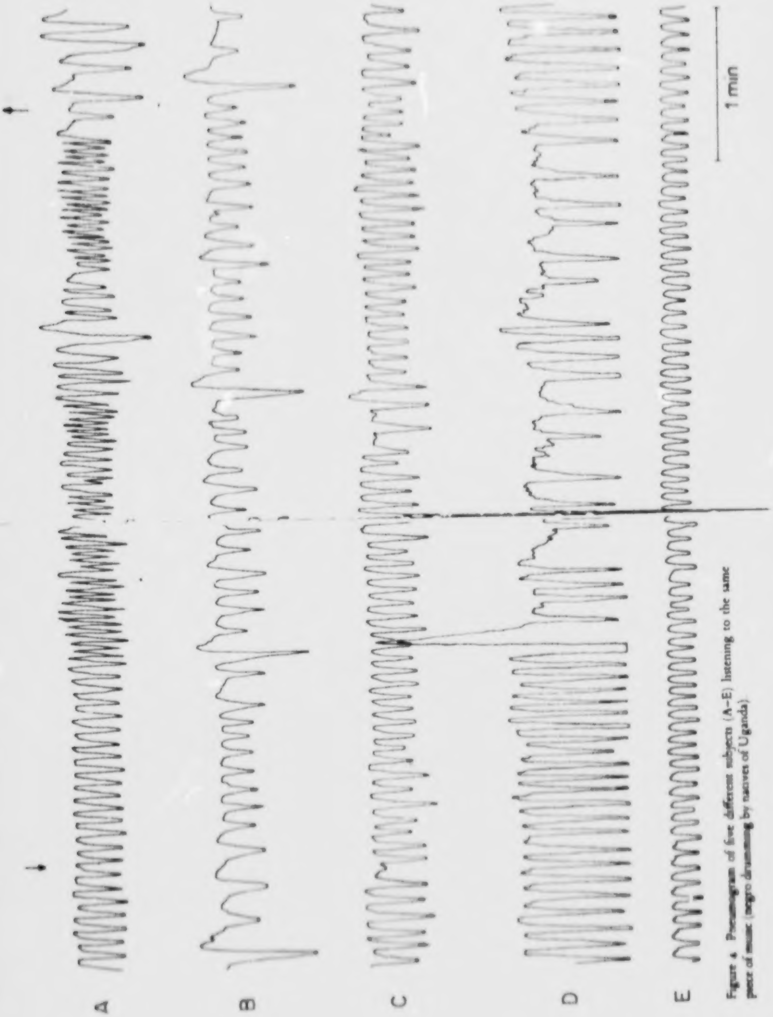

Figure 4. Pneumogram of five different subjects (A–E) listening to the same piece of music (negro drumming by natives of Uganda)

Other tests during the perception of music under laboratory conditions were concerned with muscle activity which was measured electromyographically. Fig. 3 illustrates this measurement of muscle action potential with some informative comparisons.

The subject had been asked not to move during the test and there was no muscular movement as far as could be judged from observation, even at the height of the electromyographic discharges. A simultaneous recording of body movements showed no response.

The final illustration is one of a polygraph of a subject listening to Bach's Brandenburg Concerto No. 1.

Measurements are shown for muscle activity (or muscle action potential), the oscillations of the pulse rate, the pulse rate, a graph for the music and the respiratory rate.

The features are:

1. Muscle Activity: There was some increase even shortly before the music began. Fluctuations of muscle activity are shown *and these changes were reproducible by repeat performances, and they occurred at the same passages.*
2. The pulse rate increased at the beginning of the presentation and continued at a raised level.
3. The respiratory rates accelerated at the beginning of the music, temporarily coupled with a reduced respiratory volume - in other words the breathing became faster and shallower - but subsequently showed an increase in volume.
4. At the end of the performance the respiratory rate fell to levels which were less than half those at the peak.

Fig. 3 Integrated muscle activity

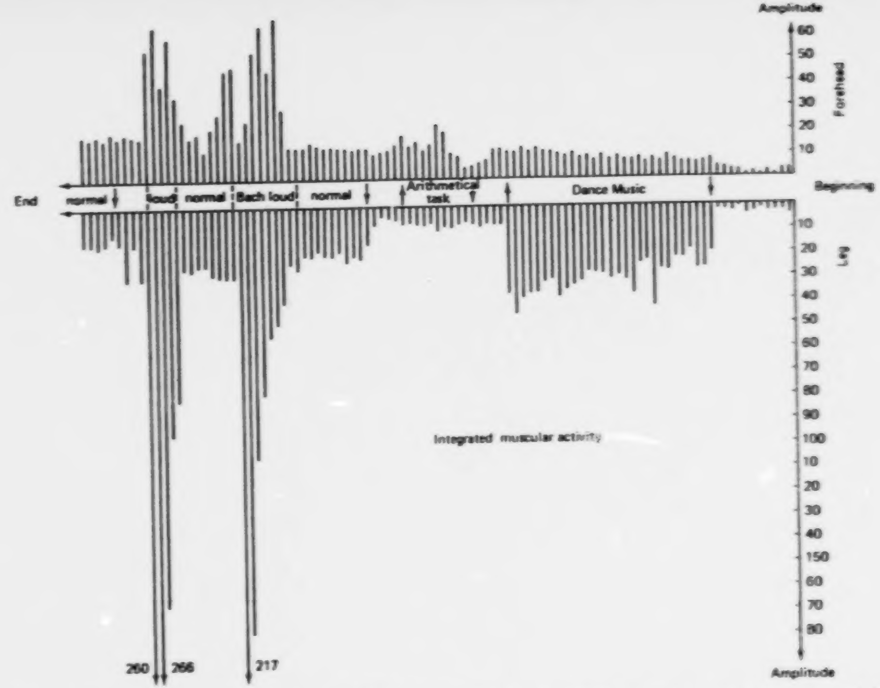

Figure 5 Integrated muscular activity shown electromyographically. Differences between the region of the forehead and of the legs while the subject is listening to dance music, during an arithmetical task; and listening to Bach's Brandenburg Concerto No. 6.

Fig. 4. Polygraphy & Bach

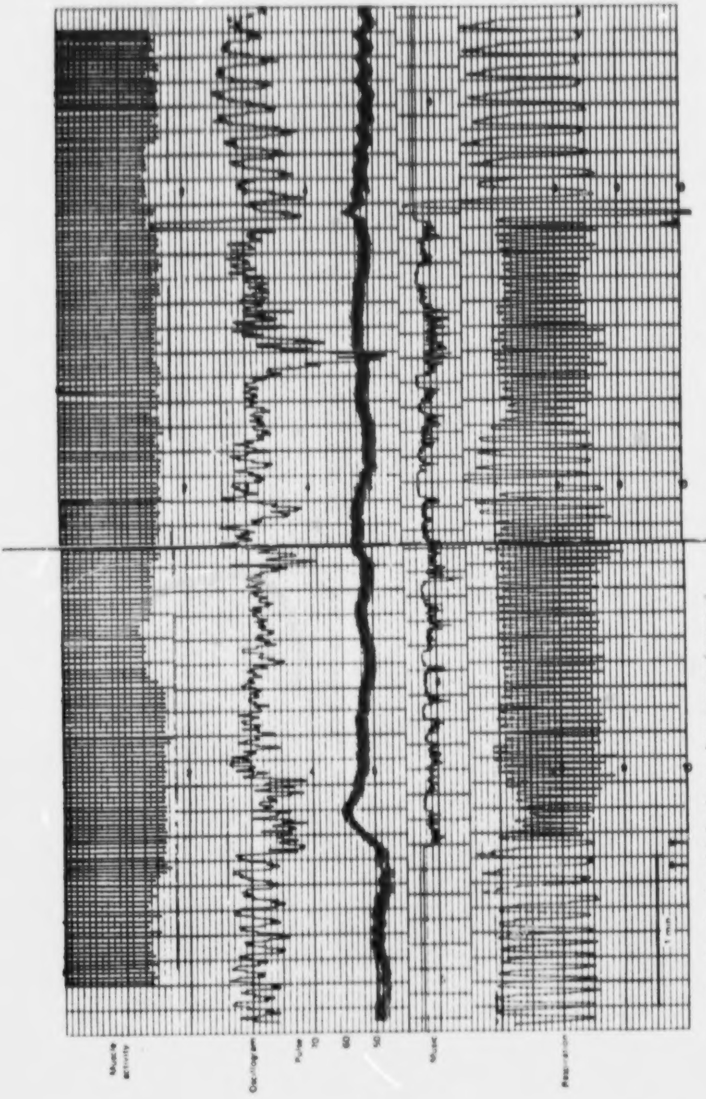

Figure 6 Polygraphy taken while the subject was listening to a performance of Bach's Brandenburg Concerto No 1.

5. It is clear that the increases of muscle activity, pulse and respiration rates which occur at the beginning of the music are the expression of a generally raised level of activity.

Two special features are also reported on by the researchers:

1. The changes in muscle activity were reproducible (in the same subject, I presume) by repeat performances of the music, *and they occurred in the same passages.*
2. A temporary slowing of the respiratory rate (bradypnoea) occurred at a certain passage, and in repeat performances *this phenomenon also occurred at exactly the same passage* and
3. At the end of the performance, oscillations of the pulse rate occurred synchronously with the respiratory rate and presumably indicated an alteration in the respiratory regulation. This conclusion is disputed, however, by Adelaide researchers who believe that regulation of the pulse rate may cause alteration in the respiratory volume (White, 1977). This disputed result, however, does not contradict the view that it seems perfectly evident that music can desirably affect regulation of the autonomic nervous system, for the promotion of psychological and physical well-being - and both, of course, are essential prerequisites to effective accelerative learning in the environment of the classroom or the private study.

In this paper I have ranged fairly widely, and briefly, on those many aspects of music as an art, a healing agent, as a means of promoting well-being and as an aid to accelerative learning.

The experiments reported on are fully in keeping with the ideals and ideas of the ancient Greeks and Hebrews, the ethical principles of Plato, Aristotle and Aristoxenos, and the spirit of *'solida utilitas'* (practical use) of the Romans.

In becoming more aware of the changing soundscape over the centuries and in mitigating some of the undesirable effects we have inherited, researchers have shown how the benefits of Schafer's 'Electric Revolution', properly applied, can aid our well-being and create more favorable conditions for the use of recorded music in learning. Such laboratory and classroom experiments as those I've mentioned are also fully in accord with the 'study from all angles, medical, scientific and so on (of the use of music) without overlooking its artistic and educational aspects . . .' which formed part of the International Music Council's proposal to UNESCO.

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La musique et les Etudes Accélérés: Quelques applications historiques et présentes

La musique a été reconnue comme un art depuis longtemps, la science et la forme de thérapie, dans le mythe et la légende. Les méthodes scientifiques moderanes ont permis aux études objectives d'être poursuivier et qui permettent de voir jusqu'à quel permit la musique peut déployer des influences à la fois nuisibles et bénéficiaires sur la psychologie de l'individu, psychologiques y neurologiques aspects. L'environnement acoustique qui se compose de la musiques et d'autres sons, a subi de profond changements à travers les centenaires résultant en "sons tuyaux" altérés. Puisque le son musical a la capacité de promovoir le bien être, lequel à son

tour est une condition préalable aux études accélérées effectives, par conséquent l'utilisation du son musical a besoin d'être utilisé avec réflexion. Cette étude examine les rapports de trois différentes investigations sur l'utilisation particulière de la musique: Comme supplément à la discrimination de langue des jeunes enfants, comme moyen d'éviter la pression provoquée au laboratoire, et comme influence positive sur la régulation de certaines fonctions du système nerveux automatique.

Musik und Beschleunigendes Lernen: Einige Historische und Gegen wärtige Anwendungen

Musik wurde schon lange als Kunst, Wissenschaft und eine Art von Therapie in Legenden und Mythologien anerkannt. Mit modernen, wissenschaftlichen Methoden sind objektive Studien möglich geworden, die zeigen, wie Musik sowohl vorteilhaft als auch nachteilig auf die psychologische, physiologische und neurologische Verfassung des Individuums wirken kann. Die akustische Umgewelt welche musik wie auch andere Töne umfaßt, wurde über Jahrhunderte eine grundlegenden Wandlung unterzogen, was zur Änderung der "Tonwelt" geführt hat. Das musikalische Töne die Fähigkeit besitzen, ein Wohlsein zu bewirken, welches in der Tat die wesentliche Grundlage für ein erfolgreiches schnelles Lernen ist, muß der Gebrauch von musischen Tönen bedacht angewendet werden. Diese Arbeit überprüft Berichte won drei verschiedenen Untersuchungen im Gebrauch der Musik: als Hilfe für Sprachdiskrimination bei Kleinkindern, als Streßverminderung in Laboratorien und als positiver Einfluß auf die Regulation einiger Funktionen des autonomishcen Nervensystems.

Música y Aprendizaje Acelerativo: Varias Aplicaciones Históricas y Actuales.

Desde hace tiempo música se ha reconocido como un arte, una ciencia, y una forma de terapia, en mito y leyenda. Métodos científicos modernos han permitido que se lleven a cabo estudios objetivos los cuales muestran cómo música puede ejercer influencias tanto perjudiciales como beneficiales sobre la composición psicológica, fisiológica y neurológica del individuo. El ambiente acústico, el cual incluye música al igual que otros sonidos, ha experimentado cambios profundos a través de los siglos, resultando en "soundscapes" alterados. Como sonido músical tiene la capacidad de fomentar el bien estar, que es a la vez un requisito esencial para aprendizaje acelerativo efectivo, hay que aplicar sonido músical cuidadosamente. Este artículo repasa información de tres investigaciones diferentes sobre usos específicos de música: como auxiliar en la discriminacion linguistica de niños pequeños, como metodo de aliviar stress inducido en laboratorio, y como influencia positiva en la regulación de algunas funciones del sistema nervioso autonómico.

J. of the Society for Accelerative Learning and Teaching, 1986, 12(3&4).

Mögen hätten wir schon wollen, aber trauen haben wir uns nicht dürfen. -- Karl Valentin

We would have liked to want to, but we weren't allowed to dare . . . or

Students' attitudes towards the use of music and mind-calming in their high school language class.

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Abstract. This study was designed to get some indication of children's attitudes to the use of SALT elements in their language class. 118 students at two high schools were interviewed using three different approaches: class interviews, individual interviews and questionnaires. These revealed that the majority of students quite liked SALT and felt it had a positive effect on their learning and behavior, but that they were reluctant to admit this in public. The results further indicated that a large number of students disliked the choice of music, and that they had difficulties handling abstract images during the mind calming.

* * *

Introduction

We have heard a lot over the past decade about the success of Suggestive Accelerative Learning and Teaching, particularly as a language teaching method for adults. Countless articles, even books, have been published on the subject, and teachers' and students' attitudes have always been reported as overwhelmingly positive (see the extensive bibliography in Schuster & Gritton, 1986).

By now enthusiasts and critics alike have remarked on the fact that the method works best under ideal conditions. These included among many others: small classes, pleasant surroundings, motivated students and 3-4 hour daily sessions. Most teachers in a conventional high school, alas, will find each one of these conditions conspicuously absent from their teaching environment. Instead they are blessed with classes of 25-35, often uncomfortable and unattractive surroundings, and in most cases less than one hour's teaching time. And the fact that language learning is compulsory for the first or the first two years in many Australian high schools may account for the fact that some of the students are unenthusiastic, even hostile, about learning a second language.

What awaits the SALT teacher in this less than ideal environment?

In South Australia there are about a dozen high school teachers experimenting with SALT. Many are enthusiastic about the results their efforts have produced. They have reported that students get better grades in the language, are able to handle more material during the year, are more interested in the language and are generally better behaved.

Many teachers have also found that they are less stressed themselves since they have been using SALT, and that as a result, they enjoy teaching more and find their teaching load less fatiguing.

The most valuable change in the teaching environment mentioned by all teachers, is summarized by Vale (1984):

> The one great advantage of suggestopedia* which is already most apparent not only to me, but also to the vast majority of my students and to the visitors who come to observe the method in action, is the atmosphere of tranquility which pervades the typical suggestopedic lesson. This is something which cannot be denied, and it is something which is a great bonus. If suggestopedia offers no more than this, then it is worthwhile!

However, this is not yet reason for euphoria! Many teachers hasten to mention that there can also be problems with the introduction of what must appear to the children a rather strange teaching approach.

In sharp contrast to adults, who more readily take to relaxation and baroque and classical music, children in Australia can be very uncomplimentary about the use of such elements in their teaching environment. And if there happen to be 2 or 3 students in a class of 27 who actively resist the method, disaster is imminent. These students are often the ringleaders in a class, and their opinion becomes the dominant one. This overt expression of dislike for the approach has disheartened some teachers and even persuaded a few to give up this way of teaching entirely.

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* In Australia the method is still largely referred to as suggestopedia, despite the inclusion of mind-calming taken from SALT.

But do the children really mean what they say?

Subjects and Setting

To get some indication of the students' attitudes towards SALT, 118 students from years 8, 9 and 10, with ages ranging from 12 to 15, were interviewed at two different high schools in Adelaide. Children at both schools come from a similar socio-economic background. School A is a newly established school with excellent facilities and very pleasant surroundings. School B is an old established school with uncomfortable classrooms and rather cramped surroundings. School A has no special interest subjects, while school B offers music as a special interest. Most of the German students at school B were also music students. The children at both schools are fairly similar in terms of academic ability, with those of school A being slightly more outspoken.

The two teachers involved were highly compatible in terms of experience and competence but with the teacher at school A placing more emphasis on discipline.

The SALT program had been running for an entire year at both schools, and included relaxation/mind-calming at the beginning of the class and passive concerts every so often to introduce or reinforce new materials. These sessions were accompanied by music including environmental (e.g., Halpern), classical (e.g., Beethoven) and baroque (e.g., Bach, Handel). For the mind calming students were given mainly guided imagery ranging from realistic images (a walk on the beach) to abstract images (being in an orange).

Method

Since the rest of the program did not really differ very much from the communicative language classes that the teachers normally taught, students were not asked any specific questions regarding the method, but invited to give their reaction to the use of mind-calming and music in the classroom.

In order to get an accurate view of the children's attitudes the information was gathered in the following ways.

Class interviews at school A

These took the form of completely unstructured discussions with each class. They involved 17 students from year 8 French, 54 from year 9 German (in two separate groups) and 7 from year 10 German.

The discussions of approximately 15 minutes were lighthearted and unthreatening in nature. Students spoke frankly, making many constructive observations, in sessions filled with laughter and good humor.

Individual interviews at school A.

The class discussions were followed by a private talk with the most negative and the most positive student in each group in order to get some feedback on whether the comments made in class were truly representative of the attitudes of the group as a whole, or merely reflected the view of a few outspoken students.

Questionnaires administered to students at school A.

As a result of the conflicting comments made by the large and small groups, a questionnaire was designed to test the reliability of the most important points.

The questionnaire further contained questions regarding specific effects the method might have on learning and behavior.

Individual interviews at school B.

Because of the suspicion of too much group pressure in the class interviews at school A, it was decided that individual interviews might be more fruitful. 5 students from year 10 German and 8 students from year 9 German were involved.

The content of the interviews was structured to coincide with the most important points made by the students at school A in order to either confirm or refute them. Questions, however, were left mostly open-ended, except in some cases where prompting seemed necessary.

Students, here too, spoke frankly with a lot of good humor making many constructive observations.

Class interview at school B.

In order to get some indication whether or not the students' attitudes at this school were influenced by the interviewing method, the year 8 German group (N=27) was interviewed as a whole.

It was pointed out to the students that they were invited to put forward their own opinion, not that of the teacher nor that of their class mates.

Results

Interviews at school A

Quizzed on their overall reaction to the use of music and mind-calming in their classroom, about 65% of all 78 students expressed negative feelings. Only about 15% said that they liked having music and mind-calming while the rest appeared to be indifferent. The most negative comments came from the year 8 group, followed by year 9A (upper stream) and year 10, with year 9B (lower stream) being the most positive group.

The most frequent comments, regardless of year level, were: " boring, makes you sleepy, waste of time, music foul."

Positive comments had to be prompted by, "Does anyone have anything good to say?" And they consisted of, "helps you learn, helps you relax, made my headache go away."

The most strongly held views concerned the music used. About 80% of the students did not like it. They found it boring, too slow and inappropriate for relaxing. Two or three in each class absolutely hated it, while an equally small number liked it very much. No one seemed to know what it was - they referred to it as our teacher's music.

When asked for suitable alternatives, one girl actually suggested strings and cellos; that is, the majority of music that they had already heard! Other suggestions were soft pop, songs from the fifties and synthesizer music. Hard metal and the like were ruled out after some discussion since the students agreed that the music had to be reasonably unobtrusive.

The children, however, observed that they liked music as part of their environment and that it helped them work. The most constructive suggestion was that every so often music might be selected by members of the class and brought to the lesson ready to play. Everyone, even the most negative students, thought that this compromise might work.

Regarding the guided imagery the most pertinent concern was: "How do you imagine yourself in an orange?" The students had been asked to imagine themselves in an orange, then being the orange and finally unfolding each segment slowly while letting go and relaxing. While this had by no means been the only type of guided imagery, it was the one spontaneously mentioned by each group and it became obvious that the students had real difficulties imagining abstract situations. Most thought that it would be easier to make up their own images, especially if they had their own music.

The students also largely objected to the position used for the mind calming. About 70% found it difficult to relax with their heads resting on crossed arms on their desks. They preferred to choose their own position. It was pointed out that lying on the floor was organisationally too difficult with a group of 27.

Another concern was the frequency of the mind calming and the loss of time it involved. About two thirds thought that it was probably too much to have a mind calming with every lesson. In principle most agreed that there was a need for mind calming, but they felt that it was greater towards the end of the day or the week. Most thought that they were fairly relaxed and well behaved at the beginning of the day. A compromise of twice a week sounded feasible.

A final complaint referred to drowsiness. About 60% felt that they were too sleepy after the mind calming. Some claimed that as a result they could not concentrate on the lesson. They suggested that they needed some pep-up in between, and one pertinent observation came from a girl who claimed that they needed something like soothing energy.

These observations taken at face value would hardly inspire a dedicated language teacher to persevere with this obviously unwelcome teaching approach, and in fact this teacher had already decided to discontinue the use of SALT with the most negative groups in his care.

Happily the individual interviews here revealed a slightly different picture.

Speaking in complete privacy away from the class and the teacher, all these children mentioned that their class had probably reacted to peer group pressure, and that some might have been influenced by the teacher's presence. The two students from year 8, especially, felt that the general attitude towards having music and imagery in their lessons was more positive than had been expressed in class. This was later supported by the questionnaire results where out of 16 responding year 8 students, 8 said that they had positively reacted to the approach and only 2 said that they had been negative.

Representatives from all year levels felt that the method had had a positive effect on their learning as well as on their behavior, but that most students did not like to admit this in class. They also mentioned that their teacher was more relaxed since the method had been used. They maintained, however, that the music used was genuinely disliked by most students in their class and that because of this many students became alienated and hostile and as a result they actively resisted the method.

On the whole they felt sure that most students would continue with the approach, especially if the choice of music were modified.

Interviews at school B

Although more positive regarding the overall reaction to SALT, the students interviewed in class with their teacher present, duplicated some of the negative comments heard at school A, in particular preferring different music and being too drowsy after the mind-calming (Appendix B). They also mentioned having a greater need for relaxation towards the end of the school day.

The most interesting observations, however, came from the individual interviews here. Not only did they support most of the observations of the individual interviews held at school A, but they also brought to light attitudes not hitherto mentioned.

Overall, 65% of the students quite liked having been taught with SALT or at least did not mind. 10% liked it a lot while 25% disliked it intensely. According to the teacher the latter tended to be the troublemakers, except for one girl who thought the course was not hard enough to warrant such an approach (Appendix B). There were not many differences in comments between year levels.

Most interesting was that even the negative ones believed that the method would help them if they could be bothered taking part. Negative reactions tended to be blamed on elements independent of the approach, such as an intense dislike of the language itself or not being interested in learning as a whole (Appendix A).

The value of the passive concerts was frequently mentioned (Appendix B) with students being convinced that they learned more and more easily as a result.

As music students they did not object too much to the music. They thought that it was appropriate for relaxing, but that some of it was too slow. However, 25% did not like it at all. For alternatives they offered soft pop, and in two cases slow Japanese music.

Apart from the negative students all claimed that they had no trouble coping with the guided imagery, but that it was necessary to concentrate. They also thought that it would be fairly easy to make up their own images. Some preferred just to daydream and one objected to the psychological intrusion, referring to the teacher: behaving like a psychiatrist (Appendix B). (No abstract imagery had been used at this school.)

Nobody found it difficult to relax with feet on the floor, arms and head on desk and eyes closed. The majority felt that the time was not wasted and that they easily made up for the 5 minutes spent in relaxation.

Many students mentioned that their class was now better behaved but that there were always the odd few troublemakers who would "muck around" anyway (Appendix B).

Finally, most students thought that they had no trouble going from the relaxation to the class proper.*

Quite a different picture from the one first presented at school A it seemed. Was it really possible that students' attitudes differed that much between two schools? The questionnaire results threw some light on the confusion:

Summary of questionnaire results

Looking at the results presented in Table 1 and comparing these to the comments made by the students in class, several discrepancies became obvious. In contrast to their initial overwhelmingly negative reactions, only 20% claimed to have been negative, while the rest were either positive or indifferent. Furthermore, 85% said that they would co-operate fully if they liked the music played.

74% preferred the position they had had for mind calming to 2 others, and only 8% said that they definitely needed livening-up between the mind calming and the lesson proper. 42% wanted a mind calming session with every class, and 80% said that learning time would not be lost as a result (Table 2.).

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* The teacher at this school used more suggestions to bring the students back to the classroom activities.

Table 1. Questionnaire results (N = 74 respondents)

					Total answers
Overall reaction:	*positive*	*negative*	*indifferent*		74
	27	15	32		
	36.5%	20.3%	43.2%		
Music preferred:*	*pop*	*rock*	*classical*		86
	53	21	12		
	61.6%	24.4%	14.0%		
Music tempo:*	*fast*	*moderate*	*slow*		85
	16	52	17		
	18.8%	61.2	%20%		
Co-operation if music liked	*yes*	*no*	*if own music*		74
	63	8	3		
	85.2%	10.8%	4.0%		
Prefer own images:	*yes*	*no*	*sometimes*		74
	41	9	24		
	55.4%	12.2%	32.4%		
Mind-calming position:	*straight*	*head on desk*	*lying down*		74
	3	55	16		
	4.0%	74.3%	21.6%		
Livening-up needed:	*yes*	*no*	*sometimes*		74
	6	33	35		
	8.1%	44.6%	47.2%		
Frequency of ** mind-calming:	*every class*	*every other*	*one class*	*never*	73
	31	26	11	5	
	42.5%	35.6%	15.0%	6.9%	

* It was possible to tick more than one box for these questions.

** One student did not answer this question.

Table 2. Questions on successful mind-calming

	Yes	*No*	*Total*
Would learn less	3	68	71
	4.2%	95.8%	
Would learn same	30	41	71
	42.3%	57.7%	
Learning easier	62	9	71
	87.3%	12.7%	
Learning more effective	63	9	72
	87.5%	12.5%	
Learning more fun	57	17	74
	77.0%	23.0%	
Would learn more	56	18	74
	75.7%	24.3%	
Students better behaved*	48	22	70
	68.6%	31.4%	
Teacher more relaxed*	55	15	70
	78.6%	21.4%	
Better communication*	52	18	70
	74.3%	25.7%	
Learning time lost*	14	56	70
	20.0%	80.0%	

* For these questions 4 students ticked both boxes; therefore their answers were disregarded here.

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The students' dislike for classical music, however, was again maintained with 86% preferring other types of music. And 61% thought that a moderate tempo was more suitable than either fast or slow tempo. The students' preference for making up their own images either always or at least sometimes was also confirmed.

As at school 2 no correlation between children's ages and comments, nor at this school between learnt language and comments, could be found. However, since the subjects in this study were very unevenly distributed across ages and especially across languages (only one French class), the researcher feels that it would be unwise to draw definite conclusions from this.

The most interesting answers were those referring to the effects of successful mind calming, summarized in Table 2.

A large number of students who had volunteered almost exclusively negative observations about the introduction of music and mind calming into their lesson when interviewed in class, gave overwhelmingly positive answers regarding the effect it might have on their learning and behavior:

More than three quarters of all students responding thought that learning with SALT would be easier, more effective and more fun. They further estimated that they would learn more, that communication would be better and that their teacher would be more relaxed. And 68% thought that they would be better behaved as a result.

These are hardly the reactions of a group of negative and hostile students, and since they had only their own experiences to go by, one might assume that they were not all that negatively inclined towards the method in the first place. Assuming that the questionnaire is a more reliable instrument for measuring children's attitudes than whole class interviews, the results are very encouraging.

Discussion

Since the answers to the questionnaires largely support what was said in the individual interviews at both schools, it seems that rather than displaying vastly different attitudes towards SALT, children at both schools had very similar opinions. The students at school B, however, displayed a more positive attitude towards the music, which might have been the result of their being music students.

The physical environment does not seem to influence children's attitudes towards SALT very much. Students at school B, where conditions are far less comfortable and aesthetically less pleasing than at school A, responded just as favorably, if not more so. This is supported by Schuster (1985) and Cureau (1983), who have successfully introduced a version of SALT or in the case of Cureau, suggestopedia to schools in very underprivileged areas.

The majority of students in this study showed that they clearly did not object to the approach. More importantly they did not think that it was a waste of time but indicated that it had a positive effect not only on their learning but also on their behavior. They even agreed that learning would be more fun and easier. What they were not going to do, however, was to say this out loud in public. On a questionnaire, perhaps, or to a complete stranger in privacy, but not in front of their teacher, or worse it seemed, in front of their peers. As one of the students mentioned, there was an image to uphold the tough act (Appendix C) into which relaxation and baroque music are difficult to fit and where good behavior must be sacrilege.

However, the students made two important observations which were clearly supported by the questionnaire:

1. A large number of students disliked the music used. (Only 14% agreed with the teacher's choice of music at school A).
2. Students found it difficult to handle abstract imagery during the mind-calming sessions (e.g., the image of an orange).

The latter problem is easily overcome by restricting the imagery to realistic situations, and by eventually allowing the children to make up their own images. These might every so often take the form of subject oriented imagery as suggested by Herr (1982). Here the imagery would be focused on an authentic scene in Germany with the children actively taking part in it through the power of their imagination. Very little guidance would be necessary after the children have been introduced to the German cultural environment with the help of slides, films and magazines.

The children's dislike for classical and baroque music is more difficult to resolve. Numerous studies (Lozanov 1978, Lehmann 1982) show that this type of music is most suitable for the concert sessions. It seems sensible, therefore, to retain this music for the passive concerts. Children object mostly to the fact that it is boring and too slow: 61.2% at school A preferred a moderate tempo which was corroborated by the transcripts of school B. This supports Lozanov's (1984) latest recommendations for faster movements and entire concert pieces, such as Vivaldi's Four Seasons and Haydn's Symphony No.82. It seems necessary to introduce children slowly and carefully to this kind of music, and to inform them about the exact role it plays in SALT. The students' initial dislike for classical music has also been mentioned in European studies (Stockwell, 1985).

Instead of forcing a type of music on children that has the potential to alienate them from SALT immediately and irreparably, a compromise might be reached. It became clear through the interviews that students are very ready to make compromises. After all 85.2% at school A said that they would co-operate fully if they liked the music.

There is no reason why the children cannot choose their own music, at least every so often, for the mind calming sessions, since its function here is simply to relax them. The children claimed that if they were able to have their type of music, which after discussion they restricted to soft pop or suitable film music without words, they would not object to the teacher's music for the passive concerts. Naturally these pieces would have to be approved by the teacher since they need to be suitable for slowing down body rhythms in order to facilitate relaxation. They should also be free from affective content (Assagioli, 1965).

Since the interviews, the teacher at school A has already successfully experimented with pieces of music supplied by the students. As a result, the students appear less hostile towards the whole idea of using music in the teaching environment. Instead they are given a chance to make a positive contribution and a sense of responsibility towards the success of SALT in their language class.

In conclusion, it appears that the success of SALT in Australian secondary schools is quite independent of the physical environment in which the classes are held. It seems, however, dependent on the teachers' psychological resilience in overcoming the initial negative feedback that the students may offer and on their ability to develop strategies to overcome some students' extreme reactions.

One of these strategies must involve the use of appropriate suggestions by means of verbal and non-verbal communication. The successful suggestive atmosphere in the classroom depends largely on the teachers' own belief in the method, their understanding of the various elements and on how comfortable they feel with these. Using suggestions confidently and with credibility is one of the most important tools of the SALT teacher, and often the most difficult to handle.

With experience, though, teachers find out what works in their classroom and what does not. Classes will invariably have one or two students who actively resist the method for various reasons, often independent of the approach itself. Teachers need to be prepared to expect less than ideal conditions, in order not to be tempted to blame possible setbacks on the method, on the students or on themselves, and give up in despair.

Being prepared for the students' objections to the music, their difficulty in handling abstract images, and their tendency to conform to the dominant opinion in the class, teachers might instead make use of the children's willingness to compromise and create an environment that is suitable for their particular children, their particular school, and not least, their own particular personality.

This is by no means an easy task, but as the two teachers in this study have shown, it is worth the effort!

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APPENDIX A

Transcripts of comments made by the most negative and the most positive student at school B.

Student 1, boy (year 10)

1. Overall reaction
- *It works, it would work for me if I listened but I don't like German.*

2. What about the music?
- *It's O.K.*
- Do you like it, don't you like it?
- *I wouldn't listen to it at home.*
- Is there any other music you could use?
- *Not for relaxation anyway.*

3. What about the images ?
- *Depends if you listen or not.*
- When you do, do you feel that it makes you more relaxed?
- *Yes*

4. What about the way you sit?
- *When we do the relaxation, everybody usually puts their head down, it's alright.*

5. What's the effect on the whole, how are people different?
- *They're more relaxed.*
- You obviously don't want to learn German... If this method was used for your favorite subject do you think you would learn more?
- *Yes, but it's terribly different stuff.*
- Would the kids be more attentive ?
- *I suppose so.*

6. Does it make you sleepy?
- *No, ah, it does a bit if you're tired.*
- But you're alert enough to follow the class, if you wanted to follow the class?
- *Yes.*

7. Are there any times when the relaxation is most helpful?
- *Don't know, better later in the day, I suppose.*
- If you did something like this seriously would you feel less fidgety, more relaxed?
- *I suppose so.*
- Even though you are not so keen on it, you are still willing to go along with it?
- *Yes.*

Student 3, girl (year 10)

1. Overall reaction

- *I like it, I think it's good, it relaxes you, you put your mind more on it, it helps when she goes through the work, I like it.*
- So what does it actually help you with?
- *You are kind of thinking more about what you are doing, the words go quickly into my brain, I just like it.*
- So you've seen a real difference between having done German before and doing it now?
- *I don't mind doing it without it, but I find it better with it.*
- How many do you think feel like you do?
- *I'd say about half the class or a quarter.*
- There is a big difference between half and a quarter!
- *I reckon about a quarter.*
- Why do you think the rest don't feel the same?
- *They haven't got their mind on it.*

- What do you think is the reason for that?
- *Hmm, I don't know. I suppose some of them don't like German anyway.*
- And do you like German?
- *No, not really, well, I do and I don't, ah, I do in a way, but I don't want to do it any more.*
- But you don't actually like the relaxation because you like German very much, you would do it with any other subject?
- *Yes.*

2. What about the music?

- *I actually like the slower music better, like what we had this morning.*
- Can you think of any other music that could be used for relaxation?
- *No words, just melody music, really quiet stuff. Some that Mrs S. plays, it's really nice stuff.*
- Do you know what it's called?
- *No.*

3. What about the position when you do your relaxation?

- *I just sit as if I'm going to sleep, and sometimes I really go into it deep.*
- And do you find it easy enough to go back to the class?
- *Yes.*
- And you're never distracted by some of the kids who act a bit silly?
- *I just keep my mind on the music and the music really relaxes me. I hear them but I don't think about them. I just picture myself in a forest or something and that's it.*

4. Do you sometimes do your own imagery?

- *No, cause I haven't got the music, I'd like to when I'm learning for tests and that, I often wondered if Mrs. S. would lend me the music.*
- And in the class, do you sometimes make up your own images?
- *I just stare at things and the other kids ask me what I am staring at.*
- You couldn't persuade some of the other kids to have the same opinion?
- *You couldn't persuade someone like N., or someone like that, cause they're all like one group, if one doesn't like it, the rest doesn't like it. I don't really like German at school, the book we used to have is really stupid.*
- Do you think this relaxation has had any influence on your liking for German perhaps?
- *All our grades went up when it happened so it made a difference to most of us.*
- Did it make a difference to the ones who are negative as well?
- *Yes.*
- but they still don't do it?
- *Ah they do, but they just... C. and N. don't do it, I don't know, it just doesn't sink in with them, I don't know why, I like it, I feel funny if we don't have it in the morning with German, I just like relaxing to it.*

APPENDIX B

Excerpts of most interesting points made at school B

I don't really need it this year because the classes have been fairly easy, but if it became harder it would probably help. (girl, year 10)

It brings the class into a sort of silence. It makes it easier for Mrs. S. to keep that silence. You got to have a bit of noise though, it's difficult to concentrate in dead silence. (boy, year 10)

We used to muck around before, but when you are doing this over and over it gets a bit boring mucking around, so now we are relaxing. (Boy, year 8)

I remember we came in after a debate once that had been really nerve-wracking, the relaxation helps. (girl, year 8)

When I am riding home after German in the last lesson I feel really spaced out. I can't snap out of it. (boy, year 8)

I think it does work with the work you have to remember, it helps you remember. (girl, yr 8)

I think it's good because it helped me. In the first term of German I got a C, and in the second term when we actually did the thing I got an A. So it helped me. (boy, year 9)

We think the music is good. Sometimes she'll ask us where our imagination took us. And also we have it during tests. It relaxes you. There are two year 9 classes who did it, and the other class decided they didn't want to do it any more, and our class in all our tests got higher marks than they did. (girl, year 9)

After you've been out for a while or to another lesson it sort of helps you to forget your problems. You don't think about overdue assignments and things like that. It helps you thinking about what's really happening instead of something else. It's helped me. My marks have come up from high Cs to high Bs. At the end of last year I got a C, in first term a B, in second term a B+ and now I am on an A in German. (boy, year 9)

Even before we were a good class that wants to learn, but there are the odd few who like to muck things up. I don't think they want to learn anything anyway. I've learnt a lot more this year than last year. (boy, year 9)

If we have really hard learning like vocabulary she goes through it with music . I had a test once and I got 12 out of 20, and then she did it with music and I got 18 out of 20 - the test was 2 days after the music session (girl, year 9)

If the mind calming was longer than five minutes it might be a bit wasted, because if it goes on for too long it's not worth it, but five minutes is pretty good because it's going to help you get a job, so I think it's really worth five minutes of every lesson. (boy, year 9)

I find it hard to concentrate, it's supposed to get everything out of your mind, well, I can't stop thinking about things, everything comes into my mind, I guess I have a problem with being tense. It's up to the people to put their mind to it. I think it would probably help me, but I have too many things on my mind. It's not very good to be tense. I might give relaxation a try. (girl, year 9)

Some kids are a bit destructive, perhaps they think it's no good to do it, you know the big tough act. (boy, year 9)

It's not that we don't like it, sometimes I can do it, but the rest of the time, I don't know, she just acts like one of those psychiatrists or something. She's good at it, but I just sit there and stare at one point. The sec-

ond part when she does it with the music always helps. (girl, yr 9)

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L'attitude des étudiants envers l'utilisation de la musique et calme d'esprit durant leurs cours de langue au lycée.

Cette étude est destinée à avoir une indication de l'attitude des enfants envers l'utilisation des éléments de la Société pour Accélérer les Etudes et l'Enseignement dans leurs cours de langue. 118 étudiants de deux lycées utilisant trois différentes approches ont été interviewé: interviews de classe, interviews individuels et questionnaires. Ceux-ci ont révélé que la plupart des étudiants ont bien aimé SALT (ou SAEE) et pensant qu'elle a un effet sur leurs études et conduite, mais ils ne veulent pas l'admettre en publique. Les résultats on indiqué en outre qu'un grand nombre d'étudiants n'aimaient pas le choix de musique, et qu'ils avaient des difficulté à supporter l'extrait des images durant les sessions de calme d'esprit.

Die Einstellung der Schüler gegenüber dem Gebrauch von Musik und Entspannung im Sprachunterricht aut der Oberschule.

Diese Studie untersucht die Einstellung der Schüler, in deren Sprachklassen die Elemente von SALT wurden gebraucht. 118 Schüler an zwei Oberschulen wurden auf drei verschiedene Methoden gefragt: klasseninterview, individuele Befragung und Fragebögen. Diese hat gezeigt, daß die meisten Schüler die SALT Methoden mochten und meinten, sie hätte einen positiven Einfluß auf ihr Lernen und Verhalten, doch wollten sie diese nicht öffentlich zugeben. Die Ergebnisse der Umfrage

zeigte weiterhin, daß die meisten Schüler die Wahl der Musik nicht einverstanden waren und daß sie während der geistigen Entspannung Schwierigkeiten mit abstrakten Bildern hatten.

Nos hubiera gustado querer, pero no nos permitieron atrevernos o... Las actitudes de estudiantes de bachillerato hacia el uso de musica y sosegación mental en su clase de lengua.

Se disenó este estudio con el objeto de obtener alguna indicación de la actitud de niños hacia el uso de elementos de SALT en su clase de lengua. Se entrevistaron 118 estudiantes en dos escuelas utilizando tres métodos distintos: entrevistas en clase, entrevistas individuales, y cuestionarios. Estas entrevistas indicaron que a la mayoria de los estudiantes les gustó SALT, que sintieron que tuvo un efecto positivo en su aprendizaje y comportamiento, pero que estaban poco dispuestos a admitir esto en público. Los resultados indicaron además que a la gran mayoria de los estudiantes no les gustó la selección de música, y que tuvieron dificultad manejando imagines abstractas durante la sosegación mental.

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RELAXATION AND IMAGINATION IMAGERY

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Abstract Two questions were addressed by this study. Does a guided relaxation exercise elicit the relaxation response measured by skin temperature? What is the relationship between skin temperature and controllability and vividness of visual and auditory imagery? Subjects (N=132) were randomly assigned to act as subjects or observers. Observers observed and recorded skin temperature during a guided relaxation exercise and while responding to the visual and auditory sections of the survey of mental imagery (SMI). There was a significant ($p < .001$) linear trend and also a significant ($p < .001$) nonlinear trend in changes in skin temperature. These results indicated that subjects did exhibit a relaxation response to the guided relaxation exercise. There was not a significant relationship between relaxation and performance on the SMI. Results, implications and recommendations are discussed.

Introduction

Imagery is believed to play a crucial role during the incubation and illumination stages of the creative process (Hull & Render, 1984a). The type of imagery that is at work during these stages, imagination imagery, is characterized by its low controllability and high vividness. The state of consciousness associated with imagination imagery is one of relaxed attention where there is reduction in sensory stimulation coupled with a degree of conscious awareness (Hull & Render, 1984a). Green, Green, and Walters (1970) found that imagination imagery is experienced when the brain is emitting low-frequency alpha and theta rhythms. Alpha rhythms are associated with daydreaming while theta rhythms are associated with borderline sleep and reverie.

Research has shown that the state of consciousness associated with imagination imagery can be enhanced in several ways. Use of electroencephalographic biofeedback can be used to train subjects to voluntarily enter the state of consciousness where low-frequency alpha and theta rhythms are emitted (Green et al., 1970). In addition, techniques such as progressive relaxation: hypnosis: zen, yoga and transcendental meditation; and autogenic training have been associated with the reverie state. Besides increasing alpha and theta rhythms, these techniques elicit the healthful relaxation response which includes decreased oxygen consumption, respiratory rate, heart rate and muscle tension and increased skin resistance (Benson, Beary & Carol, 1974).

Understanding of the role of imagination imagery in the creative process and of ways to enhance this imagery should help educators in their quest to improve their students' creativity. Relaxation training seems particularly suited to classroom settings since it is simple and cost effective. Nevertheless, in a previous study, a relaxation exercise administered in a classroom setting showed virtually no significant effects on the controllability and vividness of imagery (Hull & Render, 1984b). There were, however, shortcomings in the procedure of that study. Even though the subjects were taken through a relaxation exercise, it was not known whether subjects had achieved the relaxation response. Following the relaxation exercise, the subjects were asked to complete The Survey of Mental Imagery (Switras, 1979) by opening their eyes, reading the survey, and blackening in the desired response on an IBM answer sheet. This method of responding may well have cancelled the relaxation response had it been achieved.

The present study was designed to overcome these shortcomings. Specifically, it investigated the following questions:

1. Did the chosen relaxation exercise elicit the relaxation response?
2. What is the relationship between skin temperature, and controllability and vividness of visual and auditory imagery?

Method

Subjects The sample was 132 University of Wyoming students enrolled in Educational Foundations courses.

Procedure Ten classes participated in the study. Students within each class were randomly assigned to act either as subjects or as observers. Each subject was paired with an observer. Subjects were given directions on how to respond to The Survey of Mental Imagery using hand signals. A small skin temperature instrument called a "biodot" was placed on the finger of each subject. Each observer recorded the color of each subject's biodot at ten assigned times throughout the study. The first reading was taken prior to the relaxation exercise, thereby providing a baseline skin temperature for each subject.

Following the initial biodot reading, subjects sat comfortably with their eyes closed and listened to a taped relaxation exercise (See the Appendix). Four skin temperature readings were recorded during the relaxation exercise. After the relaxation exercise, subjects were asked to remain in their relaxed state with their eyes closed. They were reminded of the hand signals to be used in responding to the survey. A skin temperature reading was taken before the survey was read. Then the researcher read the survey, and the observers recorded the subjects' hand-signalled response to each item. Two skin temperature readings were taken during the visual portion of the survey, and two skin temperature readings were taken during the auditory portion of the survey. Subjects were told to return to a waking state with eyes open, when the survey was completed.

Instrument

Imaging ability was assessed with Form A of The Survey of Mental Imagery (Switras, 1979). The instrument is a self-report measure which measures both controllability and vividness of imagery in seven sensory modalities. However, in this study only the visual and auditory sections of the survey were utilized. The survey has been shown to be a reliable measure of mental imagery (Hull & Render, 1984b; Switras, 1979). The survey has been validated against several other existing imagery instruments (Switras, 1979).

A sample question from The Survey of Mental Imagery is:

> Can you see the color red? 1-no, 2-unsure, 3-yes.
> Rate its vividness: 1=low, 2, 3, 4, 5=high.

Results

An analysis of variance with repeated measures was used to determine if any pattern of skin temperature change existed over the ten readings. There were eight possible biodot colors ranging from black, the coolest skin temperature, to violet, the warmest skin temperature. Cool skin temperature is associated with tension while warm skin temperature is associated with relaxation.

Table 1 shows the means and standard deviations of skin temperature for the ten recorded times. Both a significant strictly monotonic trend ($F = 76.70$, $df = 1$, $p < .001$) and a significant non-monotonic trend ($F = 52.65$, $df = 1$, $p < .001$) were shown.

Table 1. Means and Standard Deviations of Skin Temperature at consecutive times. (N=131)

Time	*Mean*	*S.D.*
1	4.50	2.19
2	4.60	2.11
3	5.39	2.27
4	5.78	2.25
5	6.15	2.07
6	6.04	2.02
7	5.91	1.87
8	5.82	1.95
9	6.02	1.93
10	6.11	1.93

In order to determine if any relationship between skin temperature and imagery production existed, each subject's skin temperatures at times seven through ten were correlated with his/her imagery scores using Pearson r's. Tables 2 and 3 show the correlation coefficients for each of the relevant correlations.

Table 2. Correlations between Skin Temperatures and Visual Imagery

Time	*Visual Controllability*	*Visual Vividness*
7	-.13 (n = 132)	-.11 (n = 127)
8	-.11 (n = 132)	-.10 (n = 127)

Table 3. Correlations between Skin Temperatures and Auditory Imagery

Time	*Auditory Controllability*	*Auditory Vividness*
9	-.04 (n = 131)	-.04 (n = 127)
10	-.15 (n = 131)	-.11 (n = 127)

Discussion

One question this study investigated was whether or not a relaxation exercise would elicit relaxation. As a group, the subjects' skin temperatures increased with both significant linear and nonlinear components from time one to time ten. Since increased skin temperature is associated with relaxation, it appears that the relaxation exercise was in fact effective for most subjects.

A significant nonlinear component showed a pattern of increasing skin temperatures from time one through time five, followed by a pattern of decreasing skin temperatures from time six through time eight, followed finally by another increase during times nine and ten. Subjects were finished listening to the relaxation tape and had been reminded of the procedure for answering The Survey of Mental Imagery when time six was recorded. It appears that the subjects lost some of their relaxation response when their focus was shifted from relaxation suggestions to survey instructions. Subjects' relaxation lessened further during the visual section of the survey, but began to increase again during the auditory section. Perhaps with further training subjects could learn to maintain the relaxed state despite being asked to engage in mental tasks unrelated to relaxation such as listening to instructions and responding to survey items.

It should be noted that while the relaxation exercise used in this study was effective for the group as a whole, some individuals were not able to relax. Teaching subjects a variety of relaxation techniques would possibly help each person find a technique that works.

The second question that this study addressed was whether or not physiological state and the production of imagery are related. Despite evidence from the literature that relaxation enhances imagination imagery, no correlations were found between physiological state as measured by skin temperature and either controllability or vividness of visual and auditory imagery. This indicates that, contrary to theory, imagery production does not seem to be related to physiological state in this study.

Several questions suggested by this study could, however, lead to further research. Even though subjects did increase their skin temperatures and therefore become more relaxed, they may not have been relaxed deeply enough to produce the low-frequency alpha and theta rhythms which are associated with the production of imagination imagery. Future research might investigate whether providing subjects with several days or weeks of relaxation training would allow them to relax more deeply and to produce imagination imagery. Also, more research on the relationship between skin temperature and states of consciousness associated with varying brain-rhythm patterns could also be conducted.

Another question raised by this study is whether imagination imagery can be measured using an instrument such as The Survey of Mental Imagery. Imagination imagery is characterized by low controllability and high vividness. The Survey of Mental Imagery treats these two aspects of imagery as parts of a whole rather than as separate characteristics; that is, respondents are first asked to produce a specific image (controllability) and are then asked to rate the vividness of that specific image. However, a person experiencing imagination imagery, while not having much ability to produce the specific image requested, might experience a highly vivid image other than that requested by the survey item. In answering the survey, the person would nevertheless have to report that the requested image was not vivid at all. Future research might use different instructions for The Survey of Mental Imagery or a totally different instrument.

This study does not support the theory that relaxation can enhance the production of imagination imagery. More research is needed in order to understand how one might learn to produce imagination imagery at will.

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APPENDIX: RELAXATION EXERCISE

Check your face. Make sure there's no contrived expression at all...Just simple, natural.

Consciously you will relax each part of your body...Breathe rhythmically and smoothly. Concentrate on the palms of your hands, feeling life energy.

Relax your right foot...Relax your right ankle...Relax the calf of your right leg...the knee and the right thigh.

Relax your left foot...your ankle...the calf of your left leg... your knee...Relax your left thigh...Both legs feel limp and at ease...

Relax the right hip...the left hip...Relax the abdominal area... Relax your right hand and each finger...Forearm relax...the right elbow...the right upper arm...

Relax your left hand and each finger...Forearm relax...the left elbow...and the left upper arm...Both arms feel limp and at rest...

Relax the base of the spine...lower, middle, and the upper back... Relax the heart...Peace is in your heart, your mind...Enjoy this peace in and around you...

Relax your shoulders, the back of your neck...the base of your skull...

Relax the front of the neck...the thyroid area at the base of your neck...relax your face...your mouth...your cheeks...nose...rest your eyes...

Concentrate your awareness between the eyebrows, at the third eye the forehead...and the top of the head...Breathe rhythmically, deeply.... Allow yourself these moments of peace and quiet. Rest in childlike simplicity.... Allow yourself the pleasure of peace.

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Relaxation et Imagination des Images

Deux questions ont ete traitees dan cette etude. Est-ce qu'un exercice de relaxation dirigé provoque la réponse de relaxation mesuree par la temperature de la peau? Quelle est la relation entre la température et le control et vivacité de l'image visuelle et auditive? Des sujets (N = 132) ont été désigné pour servir de sujets ou observateurs. Les observateurs ont noté et enregistré la température de la peau durant un exercice de relaxation dirigé et pendant qu'ils repondaient aux sections visuelles et auditives à l'examen mental de l'image (SMI). Il y avait une tendance lineaire significative (p<.001) et aussi une tendance non-lineaire significative (p<.001) dans les changements de temperature de la peau. Ces résultats ont indique que les sujets ont exhibé une réponse de relaxation a l'exercice de la relaxation dirigé. Il n'y a pas eu de relation significante entre la relaxation et la performance à l'examen mental de l'image. Les resultats, implications et recommandations sont discutes.

Entspannung und Phantasiebilder

Zwei Fragen werden in dieser Studie gestellt. Erhöht eine geleitete Entspannungsübung die durch Hauttemperatur gemessene Entspannungsreaktion? Welche Beziehung besteht zwischen der Hauttemperatur, der Kontrollierbarkeit und der Intensität vo visuellen und auditoriellen Bildern? Willkürlich wurden die 132 Teilnehmer in zwei Gruppen zugeteilt: die Subjekte und die Beobachter. Die Beobachter beobachteten und notierten die Hauttemperatur während einer geleitenten Entspannungsübung sowie bei der Reaktion aouf sichtbare und hörbare Abschnitte der Überwachung der geistigen Bilder. Eine entscheidende ($p < 0.001$) lineare Tendenz und auch eine entscheidende nicht lineare Tendenz ($p < 0.001$) in Veränderung der Hauttemperatur war ersichtlich. Diese Resultate wiesen darauf hin, daß die Subjekte entspannend auf die geleiteten Entspannungsübung reagierten. Es gab keine entscheidende Beziehung zwischen Entspannung und der Ausführung der geistigen Bilder. Resultate, Implikationen und Empfehlung werden hier diskutiert.

Relajacion e Imaginacion en Imagineria

Este estudio se dirigio a dos preguntas. Puede un ejercicio de relajacion guiado producir la reaccion de relajacion medida por la temperatura de la piel? Que relacion existe entre temperatura de la piel y controlabilidad y vivacidad de imagineria visual y auditiva? Se asignaron sujetos (N=132) al azar a actuar como sujeto u observadores. Observadores observaron y marcaron temperatura de la piel durante un ejercicio de relajacion guiado mientras los sujetos respondian a la seccion visual y la seccion auditiva del examen de imagineria mental (SMI). Se encontro una tendencia lineal significativa

($p<0.001$) y también una tendencia no lineal significativa ($p<0.001$) en cambios de temperatura de la piel. Estos resultados indican que los sujetos mostraron una respuesta de relajación al ejercicio de relajación guiado. No se encontró una relación significativa entre relajación y rendimiento en el SMI. Se discuten resultados, consecuencias y recomendaciones.

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Japanese Language and SALT

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Abstract. This paper deals with the problem of western language education for Japanese and that of Japanese language education for westerners. The author believes that the effect of visual information in the memory formation process of most Japanese has a more important role than that of the simple phonetic sound environment, even though Tsunoda's famous research stresses the importance of audio environment in Japan. At the same time, the author points out the necessity of the research on Double-Plane-oriented Education (DPE) so as to increase the achievement ratio in the current SALT classes.

* * *

Remarkable Features of Japanese Language

The most remarkable differences between Japanese and western languages may be summarized in two points. The first point is the use of hieroglyphic or Chinese characters in its sentences, and the second point is that its sentences are written by the mixture of two kinds of letters, i.e. hieroglyphic and phonetic alphabet or "kana." In discussing the first point, one might assume that the situation must be the same in China. However, it must be remembered that there is a different condition there, i.e. the four Chinese tones or accents are used for pronunciation, while Japanese has no such discrimination scheme between the different meanings with the same pronunciation. For example,

MĀ MÁ MǍ and MÀ

媽 麻 馬 罵

have different characters with different meanings in Chinese, and so they can discriminate between words. But in the case of Japanese language, we cannot understand their meaning without some means of judging monotonic pronunciation. Even though the Japanese can discriminate different words with the same pronunciation in very rare cases, e.g. "hashi" corresponds to three meanings: "bridge," "chopsticks," and "edge," in most cases we have no special intonations or accents for different meanings. This characteristic is more remarkable in the expression of complex and sophisticated contents. In spite of these situations, the reason why most Japanese can understand and discriminate between words using the same pronunciation may be attributed to the imagination of hieroglyphic characters in their brains. Such associations appear to be largely unconscious but allows them to derive the proper meaning from its place in context.

The second point, use of the phonetic and hieroglyphic alphabet, has two "kana" variations "hira-gana" and "kata-kana." Thus, the total number of phonetic alphabetic characters is about 100. These kanas are used for verbs, auxiliary verbs and particles, etc. On the other hand, most nouns are expressed by Chinese characters of about 2000 letters. Japanese sentences are a mixture of these various letters. Usually, words of foreign origin are written by kata-kana or sometimes by Roman alphabet. Because of this complex mixture, sentences require more time than that of western language, though it has been greatly improved and speeded up recently by the advent of word-processors. On the other hand, we believe that the reading speed of Japanese is generally faster due to the use of hieroglyphic characters, which are far easier to recognize than letters of the phonetic alphabet. The children in our kindergartens learn to read the Chinese characters first, and to write the kana. This phenomenon may be understood by recalling how easily a baby learns to distinguish its mother's face. Such pattern recognition may be involved in the recognition of hieroglyphic letters and may be easier to learn than phonetic characters.

Dr. Gabriel Racle (1980) has introduced in the SALT Journal Tsunoda's description of the possible brain functions of the Japanese. His view stresses the importance of vowel sounds in the Japanese language. I also agree such sounds are critical for distinguishing meaning, but wish to add that the visual effect is also important. The language culture of the Japanese brain is therefore strongly affected by both visual and audio stimuli.

Development of Multi-language Learning

When compared to the Japanese language, language expressed with the Roman alphabet is learned mostly through the auditory sense. Mr. Yoh Sakakibara, president of the Transnational College of LEX (Language Experience, Experiment and Exchange), tried a curriculum of multi-lingual activities, teaching English, Korean, Spanish, French, Chinese, German and Japanese simultaneously. He found that there exists a mutually opposing consciousness within the bilingual environment, while it disappears in a trilingual world or more. The Canadian government introduced suggestopedia in 1973 in order to train the English-speaking officials in French. In the bilingual speaking countries, it is said that very few can speak both. The author supposes that this is due to the mutually opposing consciousness between two languages. Sakakibara says that a symbiotic consciousness appears at the instant when the situation of an over-trilingual environment emerges, dissolving whatever mutually opposing consciousness that existed before in the bilingual society. His language class became successful after he added Spanish lessons. The students began to compare two languages and said, 'I like this language' or 'No, I like that language.' These choices fluctuated after a moment and then they enjoyed singing each language alternatively. The speaking ability of students gradually increased later. Thus, he has now increased the number of languages to six.

I met with Mr Sakakibara in 1986 and found that the students in his class had no apparent progress for the first year, after which they progressed rapidly. I had noticed that multi-language learning is very similar to the pattern recognition in visual learning. We can easily memorize thousands of our friends' faces by discrimination of visual stimuli. Just as babies learn to discriminate their mothers' faces at first, given strong motivation we may discriminate and learn the features of several different languages. The Hippo Family Club was organized to create such an environment.

> LEX operates a sub-organization for daily activities called Hippo Family Club. Through this club, language facilitators, called 'fellows' play a prominent role in assisting members to learn foreign languages. Currently, in order to provide a richer variety of multi-lingual settings, people of other nationalities are being encouraged to

become fellows and members (Sakakibara, 1984).

Tomimoto Amano (1982) has also proposed multilingual education by three languages together with the Amano chair and it seems his psychological idea is a little different from Sakakibara's.

Foreign language learning for Japanese and Japanese language learning for foreigners are not necessarily the same, but at least in the former case, the unconscious association of Chinese characters plays an important role for effective learning. Multi-language learning may be further improved by introducing the idea of audio-visual symbiosis.

Introduction of Display Session

As a natural result of the preceding discussion, the author has newly introduced a display session between active and passive sessions currently used in the conventional SALT classes. Of course, I would not like to use the word "final" as used in my former paper (1984), in the meaning of general education, but instead, for the narrowly limited case of SALT as engineering education in a large size college class over 400 students in one department.

The lesson program of the usual SALT class may simply be summarized as follows.

a. Oral lecture
b. sessions (1) active session
(2) passive session
c. elaboration

Let us call this curriculum the standard SALT system. Of course, the elements of playing, games, psychodrama, etc., must be included in the curriculum, but these may be considered as a part of elaboration.

The author's method may be summarized also in a simple form as follows, calling it as "audio-visual system":

a. oral lecture
b. sessions (1) active session
  (2) display session
  (3) passive session
c. elaboration

The details of the audio-visual system are already published in the SALT Journal, so it may not be necessary to repeat them here. This system is the result of five years of experiments, and I believe it is the best one for large size college classes, although minor improvements may be expected hereafter in the course of future practice. For the time being, some explanations might be necessary about the display session in the system in question. In this session, no oral explanation is given by the teacher except overhead projector demonstrations with background meditative music. I believe this not only facilitates the communication between conscious and unconscious channels under the influence of this music, but also may set up the psychological conditions necessary for the passive session without the teacher's direct suggestion. Finally, students will recover their regular consciousness by the allegro music played for a few minutes at the end of a passive session.

In the elaboration time, the students solve easy quizzes by consulting each other and the patrolling teachers, because they are allowed to talk to each other freely during this interval. In favor of the audio-visual system, the author was able to educate a large number of engineering students with great success.

Double-Plane-Oriented Education (DPE)

The so-called "double-planeness" is one of the important means of suggestion to overcome the anti-suggestive barriers and to achieve desuggestion, which is one of the elements of nonspecific mental reactivity (NMR), as was shown by Lozanov (1978).

In spite of a maximum achievement record of 1800 or 3000 words per day as reported by Wolkowski (1974), most of the actual classes are said to have attained only 200 words per day, or a 3 to 5 times acceleration over conventional classes. This result, I suppose, is due to the incomplete training technique on the teacher's side, especially in double-planeness. Of course, Lozanov (1974) emphasized that no suggestive work should start without teacher mastery of the double-planeness of behavior. Though I have to agree with his view in this point, still his explanation about the second plane seems abstract.

On the other hand, most of the neuroanatomists suggest that all memories are not stored in one specified location in spite of extensive research. Professor Richard Thompson (1984) of the Psychology Department, Stanford University, developed evidence pinpointing precisely where certain memories are stored in part of the cerebellum. These memories do not mean all memories for all time, so some assumptions are necessary to explain the mechanism of memory functions and to improve the curriculum of the SALT system. The author also would like to allow revising the following assumptions, if necessary, after listening to the latest brain research on the memory by Dr. Lynn Nadel. But before proposing my assumptions, I tell this story.

On the way back from Rio de Janeiro (Third International Symposium on Accelerative Learning) last March, 1987, the author met a medical doctor, Leopold Diaz Martines, of Guadalajara, Mexico, and got an important hint for accelerative learning techniques. He once met an unknown patient when he was examining many other patients at the National Railway Worker's Hospital, then (October 26, 1976) a vice-director there. After treatment, the unknown patient disappeared after going out the hospital door. According to the doctor's reflection after telling him goodbye, he noticed that the contents of knowledge got from the unknown patient required a week or so to explain to his friends by vocal means. "I cannot explain," he said to the author, "why such an amount of information has been stored in my memory only in two hours." The author also could not explain the reason for his outstanding ability of memory at a younger age. According to his retrospection, his nickname during his student days was 'Page.' He could remember the contents of an anatomy book of about 1500 pages for a year and he could instantly point out the appropriate page after listening to a question given by his friends.

It is time to consider deeply the case of Dr. Diaz and propose some assumptions. The following assumptions which may explain the theory of accelerative learning of Dr. Diaz, may also be useful for elucidating the mechanism of our double-planeness. Of course, the second plane may be invisible to physical scientific means, but we may assume that it really exists. Furthermore, the memory capacity of the second plane is so enormous that all the information in our lives can be stored there easily. At the same time, the channel capacity of the second plane is so large, that all the coming information may be processed almost instantly. However, the amount of information and the processing time in the first plane is limited by our five senses and the physical nervous system. The author also would like to propose one more assumption that there must be an information channel between the first and second planes, called "antaskarana" (Bailey, 1925). But it might be better to call it "higher path" for simplicity's sake. This higher path is not available normally for ordinary people. Only some information can pass through this easily and sometimes with difficulty, depending on the individual mental condition. Here is the key for finding out the technique of DPE.

Just as the computer has temporary memory (registers) and permanent memory (main memory), our brain must have two kinds of memories. The memory in the first plane may correspond to the register in a computer, while the memory in the second plane may correspond to the main memory. Assuming these assumptions, then we can consider three main routes to reach the main memory. The first is the direct route to the second plane through the sixth sense, the second is the indirect route through visual images and the higher path, and finally the third is the indirect route through the audible sense and the higher path. The author would like to recommend not only learning through the second and third routes, but also learning through the first route, because the DPE may be achieved by the combination of all routes. A fourth route through the sense of touch may exist, having a special use as learning Braille by the blind.

In the case of Dr. Diaz, the information was sent through the first and third routes, but he was unconscious of the former route. However, his learning ability in his youth to receive visual information page by page and to express them vocally substantiates the easy communication through the higher channels.

In conclusion, it may be worth considering developing DPE, especially for the efficient learning of Japanese language for westerners as well as western languages for the Japanese. One example is the introduction of the "display session" between active and passive sessions which the author has used for engineering education in a large size class. In this session, it may be very effective to mix beautiful and authoritative pictures among many instructive materials. Another example is the use of the learning speeder proposed by Dr. Machado (1982) and applied to his CLC system.

Some Remarks

Finally, I have some remarks on the learning problem of Japanese language by foreigners. The importance of the audio-visual symbiosis is not so necessary for primary grades or everyday conversations. However, for training Japanese language teachers, where they have to learn Chinese characters, an audio-visual symbiosis is absolutely necessary. This is the reason why the author recommends a display session in the course of the curriculum. On the other hand, there has been no proper Japanese dictionary with Chinese characters available by foreigners until recently. Fortunately, a foreigner from Israel (Halpern) to Tokyo, studied Japanese many years and compiled a dictionary which is convenient for foreigners to search for new characters by the principle of pattern recognition, and which will soon appear in bookstores after July 1987.

Material to be shown in the display session may be usually pictures, but the author supposes the hieroglyphic characters from such a dictionary may bring the same effects to the students in listening to meditation music. By this means, we can exclude the suggestive words usually given in suggestopedia before the passive session, and thus make it possible to activate the limbic system without hypnotic techniques.

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La langue Japonaise et la Societe pour Accélérer les Etudes et l'Enseignement

Cette etude s'occupe du probleme des d'etudes de langue de l'Ouest par les Japonais et celui des etudes du Japonais par les gens de l'Ouest. L'auteur pense que l'effet de l'information visuelle dans le systeme de formation de la memoire de la plupart des Japonais a un rôle plus important que celui d'un simple milieu de sa phonetique, bien que la fameuse recherche de Tsunoda insiste sur l'importance du milieu audio au Japon. L'auteur fait remarquer, en même temps, la nécessité de recherche sur "Le Point Double de L'Education Dirigee" (PDED) en vue d'augmenter le taux de réussite dans les cours actuels de la Societe pour Accelerer les Etudes et l'Enseignement.

Japanische Sprache und SALT

Diese Studie handelt von Problemen des westlichen Sprachunterrichts für Japaner und des Japanischunterrichts für Westliche. Der Autor glaubt, daß die Wirkung der visuellen Information im Prozeß der Gedächnisformationen bei den meisten Japanern viel entscheidender sei als die der einfachen phonetischen Tonumgebung – wenn auch Tsunodas berühmte Forschung die Wichtigkeit der auditoriellen Umgebung in Japan betont hatte. Ebenso deutet der Autor auf die Notwendigkeit der Forschung in der "Doppelflächig orientierten Ausbildung", damit die Leistungen in den gegenwärtigen SALT Klassen erhöht werden könnten.

El idioma Japones y SALT

Este artículo trata del problema de enseñar un idioma occidental a Japoneses y de enseñar el idioma Japonés a occidentales. El autor cree que el efecto de información visual tiene un papel más importante que el del ambiente simple de sonido fonético en el proceso de formación de la memoria de gran parte de los Japoneses, aunque la investigación famosa de Tsunoda acentua la importancia del ambiente auditivo en el Japón. A la misma vez, el autor subraya la necesidad de investigación de la "ensenañza orientada al plano doble" (DPE) para aumentar la proporción de resultados positivos en clases actuales de SALT.

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Dual-Plane Awareness Techniques Other than Lozanov's, for Accelerating and Enriching Teaching and Learning

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Abstract. Lozanov demonstrated that to give both conscious and unconscious mind the same data, so that the responses of one "plane of awareness" do not conflict with those of the other "plane of awareness," has therapeutic value as well as pedagogical benefit. Lozanov's description of the nature and role of the "second plane of awareness" is quite consistent with virtually all other findings in the various branches of psychological inquiry regarding "the unconscious mind." This writer proposes visual thinking as another strategy for usefully engaging the rich sensitivities, information and perceptions, held unconsciously and seemingly unavailable to the learner in that second "dual plane". Such visual thinking engages little-noticed phenomena which appear in all of us. The writer defines specific techniques, both teaching methods and tests of the supportability of a number of related hypotheses which appear to be of considerable pedagogical and human consequence.

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Introduction

Dr. Georgi Lozanov's Suggestopedic method builds in large part around the principle of orchestrating classroom communications to convey the same message to both the conscious and unconscious "planes of awareness" in the learner.

Probably the aspect of Lozanov's theory and practice least argued over, is this aspect of unconscious "second plane of awareness." This may be because of the nearly unanimous observation by most of the diverse branches of psychological inquiry that there is indeed an unconscious level of perception, thought and feeling. If concurrence among many diverse researchers is indicative, there is indeed such an unconscious; this unconscious is a major part of the information processing within each individual; this unconscious aspect interacts extensively with and is usually seen to dominate the conscious responses and information processing of each individual.

In face of these nearly unanimous observations across virtually every diverse branch of behavioral science inquiry, it seems somewhat remarkable that the Suggestological proposition should be accepted so reluctantly and slowly as has been the case. Given the above, it seems clear enough that by arranging matters so as to send the same educational content message to both conscious and unconscious, one reduces the conflicting interference between these two levels within the individual so that the installation of extensive information by such orchestrated means constitutes a useful therapy above and beyond the simple morale boost of finding oneself able to function as a superior learner.

It also seems remarkable that the parallel Suggestopedic aspect should also find similarly reluctant acceptance - that such orchestration of message content to harmonize the conscious and unconscious levels together simultaneously, accelerates learning, improves the quality of that learning as the dysharmonic "noise" of conflicting inputs is reduced, and results in long-term high rates of accurate recall of the information thus learned. Since we perforce do address the unconscious in ourselves and in each other in *any* case, we might as well look toward doing so in a way which promotes health and clarity rather than their opposites.

Perhaps some lack of understanding of key aspects of Suggestological theory and practice,, on the part of some of us who evaluate and even advocate these, has played a role in the slowing of acceptance.

So long as either therapist or educator accepts the essential paradigm of the unconscious as a major factor in the individual, and in the processing of perception and information in each of us, the only admissible arguments should be over the comparative merits of Suggestopedic techniques versus other techniques for relating unconscious to conscious information processing, and over the comparative merits of each respective approach to doing so.

That most psychological and educational argument over Suggestopedia has not even reached these two areas of admissible, respectable, discussion, much less restricted itself to these, appears to say far more about many educators, psychologists and their respective institutions, than it does about Suggestopedia – at least until and unless the present paradigmatic underpinnings of behavioral science, especially those regarding the human unconscious, are called back into question.

In this present paper we shall venture an alternative strategy for productively engaging the unconscious in the act of learning. We shall argue some of the bases for this alternative strategy. We shall propose procedures to test and to implement this alternative strategy. We shall not venture to argue relative merits between this alternative, visual thinking, strategy and the Suggestopedic strategy, except to propose that these several strategies definitely are not mutually exclusive alternatives and indeed appear to be positively synergistic. These are, nonetheless, very distinct strategies.

Whatever the relative merits of the visual thinking strategy vis-a-vis the Suggestopedic strategy may be, on a case by case basis visual thinking's efficacy, thus far has been strongly supported by observation, as has Suggestopedia's. Formal quantitative studies of the Suggestopoedic method have, indeed, by now been performed and reported, but we appear to be well overdue for a quantitative testing of the visual thinking strategy on a comprehensive, systematic formal basis. Such an evaluation, which publication of this paper is hoped will encourage, may add substantially to current understandings about human brain and mental function and about human learning.

Bases of the visual thinking strategy

When taken together, two widely or universally accepted findings about human brain function say a great deal about the human unconscious, and suggest strongly a unique strategy with many possible diverse techniques expressable from that strategy for engaging the unconscious productively in the task of learning.

One of these two generally accepted facts is the result of a half century of electroencephalographic (EEG) mapping: 80% of the brain by area is involved in visual response, substantially more than with any other sense, though the various senses overlap also into some of these regions.

By contrast a half century of electroprobe study during neurosurgery has demonstrated that less than 1% of the cells of the brain scattered over less than 5% of the area and volume of the brain are involved in conscious response. The rest, a truly vast "silent majority," are unconscious.

Significance of the Relationship between these two Data

The preponderance of visual response is at unconscious levels. Visual response arises mostly in unconscious regions of the brain. While unconscious content in those regions plays little role in objective, exterior vision, and only some role in directed interior imagery, it appears to define the product of spontaneous, *un*directed mental imagery processes, processes which appear to occur in every individual including the reader.

Upon questioning, most subjects acknowledge experience of forms of undirected hypnogogic and/or hypnopompic visual mental imagery in addition to the experience of dreams as such. Beginning around 1974, the writer found he could elicit reported experience of this same undirected imagery in "subjects" (actually, students and clients) in a fully awake state and without hypnosis. The ease of elicitation indicated that such imagery is a continuous, ongoing process within each of us.

Even without any training to create a special mental state or relaxation state, many people, including some readers of this paper, can, immediately upon closing their eyes readily observe this ongoing imagery. A few report that they can observe it even with eyes open, any time they care to switch attention to this ongoing "visual commentary."

Persons who did not report this experience, nonetheless upon closing their eyes in almost every case could soon be observed to be giving some reflexive attention to internal phenomena even though fully awake. Observable cues for such attention-responses include:

* Movements of the eyes under the closed lids similar to REM (Rapid Eye Movement) during sleep;
* Momentary suspension of breathing, as one holds his breath waiting to see what happens next;
* Trace muscle responses in face, neck, arms and shoulders.

When questioned immediately after such cues, "What was in your awareness just then?" nearly every subject immediately or soon reports that s/he was indeed having a dream-like visual mental imagery experience and can describe it.

In almost every instance, the act of describing such imagery in sensory-rich detail while eyes are kept closed elicits further and richer visual mental imagery; such sustained ongoing description usually leads to experiences which carry great apparent meaning for the person.

The first two forms of attention cue, the breathing suspension and the closed eye movement, are so readily observed even by wholly untrained observers that this writer designed and published popular-level training procedures and later more comprehensive forms of these procedures, enabling anyone be s/he layman or in a consulting or in a professional or research role, to readily train perception of this ongoing phenomenon in oneself and in others. (Wenger, 1981a & b; 1987a).

Note also that back-up procedures, many of which are also already published (Wenger, 1985) have been able to elicit the perception of this ongoing undirected visual phenomenon in anyone who did not reach this perception from reinforcement of attention cues. Without exception every one of the last several thousand persons trained through various of these procedures has reported experiencing these ongoing visual mental imagery phenomena.

It approaches certainty, therefore, that the reader and many other human individuals with ordinary vision, also possess this ongoing visual and mental faculty and may readily access its perception given appropriate techniques, even if in most of us this phenomenon has until now been largely or wholly unnoticed.

The prevalence of this order of undirected, ongoing visual phenomenon has been masked by a confusion in the literature between these *spontaneous, un*directed images and more directed forms practiced in many programs for a variety of purposes. Virtually everyone referring to "imagery" thus far has referred to *directed* types of imagery and appears unaware even that there is another, *un*directed type with its own significance and its own possible uses.

The writer has suggested a neurological significance and use for the phenomenon in that the actual ongoing *description* of such inquiry, engaging verbal centers in what is usually the far left temporal lobe and very *distant in the brain from* the apparent areas sourcing the experience of such imagery, improves both understanding and intelligence. This *"pole-bridging," exercising and building up links between widely separate regions of the brain through intense combinations of activities and perceptions characteristic of those* *widely separate regions or "poles,"* may prove to be an invaluable general *strategy* for increasing human intelligence, able to generate hundreds of specific such techniques to render the various resources of the brain more accessible to each other and to whatever tasks and processes are ongoing (Wenger, 1984a).

Apparently effective problem-solving techniques built upon the same phenomenon cast this topic in a highly practical light. For any type of problem: engage this ongoing commentary phenomenon of undirected spontaneous visual mental imagery to quickly find answers to questions, and solutions to problems and problem contexts without otherwise directing the contents of imagery. We have found in such processing:

1. Confirmation that the second "dual plane" is indeed much more sensitive to data, cues and perception than is the first conscious "plane".
2. That these two "planes" may be addressed separately, as well as together, that the unconscious may be addressed directly and respond without distortion or interference by the subject's conscious "plane" or mind.
3. Expectations are seated in or near the conscious, so that when the conscious is *un*aware of the topic, problem or question being presented, expectations do not have opportunity to distort the data being "read" from this ongoing undirected visual imagery commentary!

Where Lozanov's strategy in part is to bring conscious and unconscious content into closer agreement, this one element of visual thinking strategy is to *take advantage of the differences* between the "two planes" to bypass some of the limitations found in the conventional "first plane."

Besides practical answer-finding and solution-finding, this latter aspect bears implications for conflict management and conflict resolution counseling, potentially helping to resolve conflicts at interpersonal, interorganizational and international levels.

Applying Image Responses to Settling Conflicts

Beginning in 1980, this writer found in a succession of unpublished experiments that groups which consciously are bitterly divided over some issue, nonetheless *unconsciously agree unanimously on the best resolution of the* same conflict issue, as evidenced by the contents of the undirected imagery resulting when "concealed" questions on that issue are addressed directly to the unconscious!

Despite the remarkable nature of such a finding, let us hasten to add that the *interpretation of undirected imagery content* despite some objective procedures, at the present time is substantially subjective. Where the hard lines of conflict are drawn, such elements of subjectivity limit the acceptance and usefulness of this imagery approach to the resolution of conflicts.

What this finding *does* suggest, however, is that similar unanimity can also be obtained through use of much more concretely objective bioinstrumentation. The writer has proposed a test of the hypothesis that people on all sides of a given conflict are unconsciously in agreement as to how best that issue should be settled. The writer will be pleased to send copies of the general test protocol to inquires c/o this Journal.

Another major area of potentially practical significance for this phenomenon of ongoing undirected visual imagery commentary is pedagogical.

Pedagogical Implications of the Spontaneous Imagery Phenomenon

Even in highly directed imagery processes, spontaneously unexpected, surprise components of experience often appear. Both these and the wholly undirected, spontaneous, ongoing form of imagery phenomena reflect unconscious data and perceptions formed into imagery within that vast majority of the visual response system of the brain which operates beyond focused consciousness.

A basic teaching procedure, using such phenomena, is to shape a context in reference to the desired intellectual or artistic understandings or physical skills. Use that context, then, to elicit the otherwise undirected content of ongoing imagery, or to define an otherwise undefined "space for surprises" in a directed imagery experience. Have the student continue to observe and to describe such experience aloud. The student thus describes into his/her full conscious perception from the "second plane of consciousness" a far richer awareness than until then could be found in his/her "first plane".

Since 1977 the writer has been using for pedagogical purposes, forms of directed imagery specifically designed to produce areas of surprise, to elicit unconscious data and perceptions in the contexts of particular topics, school subjects and skills. This procedure has proven highly productive, but only recently has it become apparent that the further reaches of this phenomenon, the ongoing visual imagery commentary whose contents are wholly free of limiting direction by the conscious, may also be usefully applied in the pedagogical context (Wenger, 1987).

New Pedagogical Techniques Which Use Undirected Visual Imagery

I. Creating an Assimilative Structure for New Information - Beginning in 1986, after determining that the subject *was* able to readily perceive consciously his or her own ongoing visual mental imagery commentary, this writer began to counsel individuals to use this whenever they experience or anticipate difficulty in assimilating a text, a homework assignment, a formal paper, or a lecture:

1. The subject is asked or the individual may ask him/herself to see the visual image which somehow will contain the key understanding around which most of that text or assignment or lecture content will revolve.
2. The instruction to the subject is worded somewhat like this, "Even now, your mind's eye has prepared a picture which is waiting for you to look at, which contains in some unexpected way the key understanding (of this book, assignment, lecture, whatever). Everything in this (book or whatever) revolves around this key understanding. Close your eyes and look at that image *now* to see what that key is."
3. The subject then describes aloud or in writing or sketches, the image s/he sees, then goes on to the next task.
4. In virtually every instance, even where the subject has had no previous contact with the text and seemingly no reasonable basis for contact with its subject matter, the subject has reported an immediate transformation from experience of difficulty and unintelligibility to transparent ease and richly meaningful intelligibility of the text or task content.

5. It may be argued that to place into the mind *any* cognitive hook or structure, upon which to sort and hang the contents of text or task as they are encountered, may produce somewhat similar results. That is definitely in need of further investigation, but thus far the *degree* of apparent transformation appears greater than that explanation may account for. Nor have we yet tested for results with totally unintelligible papers (we trust the reader will not consider this present paper one such!)

The obvious next stage of investigation, which should be undertaken systematically at an institution, should be to select texts, papers and taped presentations with varying degrees of apparent difficulty relative to the selected ability levels of the experimental and control subjects. Develop a battery of test questions to assess the degree and quality of comprehension of these materials, comparing from group to group in the experiment.

The control group would be without instructions, simply run through the materials and tested for comprehension afterward. One experimental group would be given training and experience in undirected visual mental imagery, but would not be instructed to use this imagery in pursuing the text materials. Hypothesis – that these subjects, due to "pole-bridging" effects, building up communications within the brain, will show some improvement in performance when compared with the controls, but perform considerably less well than the fully experimental group.

A second experimental group will be given some other arbitrarily chosen image or idea to serve as a cognitive hook or assimilative structure to keep in mind while pursuing the materials. The hypothesis is that any idea or image serving as a cognitive hook and sorter is better than none in assimilating new information for comprehension. But it should be far less so than the images generated in context by the unconscious regions of the visual response systems of the brain. We predict some gains in rates of comprehension, but considerably less than with the fully experimental group.

The third, fully experimental group, first will be trained to perceive ongoing undirected imagery, and then will be instructed as per the above protocol. We hypothesize that images generated in context by unconscious regions of the visual response systems of the brain will be especially useful in sorting and retaining at useful levels the information pursued from the context.

We predict that the ability of the unconscious component of the brain's visual system to sensitively detect and project the essence of intellectually demanding discourse, and the use of this phenomenon to accelerate and enrich the acquisition of conscious understandings will be substantially supported. The rate of comprehension by this fully experimental group should far outstrip that of all other groups.

The fully experimental group, trained and practiced in experience of "Image Streaming" (orienting to and then concurrently describing in sensory detail aloud these undirected visual mental images), then instructed to find an undirected key image when pursuing such text materials, should show profound gains in rates of comprehension over other groups, and in so doing demonstrate this procedure as a potentially very major pedagogical technique for accelerated and enhanced learning.

II. Using Such Imagery in the Integration of Knowledge

In a previous paper (Wenger, 1987c), we argued that most schooled subject matter has been taught "in boxes," so separated from context to context that most students are unable to generalize in their learning from the particular context in which they learned it, and are unable to either recall or transfer much of what they have been taught beyond that initial limited specific classroom context. This loss by most students occurs to such an extent that education itself has often been described as "what you have left after you've forgotten everything you've been taught." This loss represents a prodigious waste of time, effort and resource on the part of all who are involved with it, especially if there are viable alternatives available which would assure long-term retention and transfer of the contents of learning (Wenger, 1987c).

One of the attractions of Suggestopedy is its apparent tendency toward high rates of long term recallability of information learned by that method. Beyond Suggestopedy, Jerome Bruner (1966), Oliver L. Reiser (1958), Mortimer Adler and others have made a respected case for the proposition that to integrate knowledge in the curriculum, focusing the student's awareness on a recognizable structure of principles or natural "laws" common to many different contexts, *will* indeed produce high rates of recall of learning and of transfer from initial contexts to manifold general usefulness, and will further enrich immensely the level of meaningfulness of all experience subsequently encountered by students thus prepared.

This writer went on to propose a curriculum procedure, an initial cognitive "hook" or assimilative structure to aid this procedure, and some interactive methods which would make it easy for educators to induce their students to develop such integrations *even where* teachers and schools have no such intellectual integrations of their own to work from (Wenger, 1987 a, b, c & d).

Only since April 1987 did this writer discover the obvious, that if students are prepared beforehand in perception of their own spontaneous imagery commentary *to question this reflexive image faculty*, they can then easily and rapidly generate the structural integrations and understandings for their own structure of knowledge.

In the paper just cited, we argued for a curriculum structure wherein schools would conduct courses two at a time, say mornings for one and afternoons for the other over several weeks to be concluded by an "Integration Day" where students would be guided by interactive and well-focused procedures to integrate everything they have just learned with previous material.

Such a procedure would further reinforce the learning just acquired and make it more transferable. It would also revive much of previous learning to useful levels. It would render more meaningful all subsequent experience and learning of the student, especially if a *succession* of three or more such paired courses was followed by such an Integration Day.

However worthwhile the prospective results of such an arrangement may be, pursuit of this as an experiment or as a curriculum procedure is beyond the apparent means of most individual teachers. Most schools have exhibited some disinclination toward even minor changes, much less such a major rearrangement of courses and curricula. Yet the apparent benefits and basis for such a procedure seem to render it very worthwhile if at all possible to pursue. Further, such a schedule could easily be made into a special summer school program.

The breakthrough, though, in this regard of building an integration of knowledge within students, comes from use of the ongoing spontaneous undirected visual imaging faculty present in every student. This breakthrough renders it feasible for any teacher to easily generate a meaningfully integrated structure of knowledge in every student, even without the further advantages of the proposed pairing of courses and their concluding Integration Days.

Within the limits and confines of any conventionally situated course, the teacher may ask the spontaneous imaging faculty of each student to produce pictures as in these examples:

1. "In what important way does the principle or structure of complex homeostasis show in what we've just learned about the American Revolution?" The student may not "know" the answer but his imaging faculty nonetheless shows him a picture. Describing the picture leads to discovery of its meaning, and s/he generates a meaningful answer to the question.
2. "What key principle from molecular biology will best organize for us a useful understanding of the contents of this algebra class?"
3. What key principles show us physics and chemistry to be one field, not two, and which makes immediate sense out of everything we've learned here?"
4. "What key element do we still need to account for in this synthesis?"

Answers to these questions will sometimes appear literal, but more often symbolic. Students interpret their own symbols and relate them to the question context, thus greatly *enriching their neurological contact with* that question context as well as generating an understanding.

As they do this, they will enrich all their past, present and future learning and experience.

A basic way for the teacher to present such questions is to ask each student to attend to the asking of it with eyes open, then close their eyes to see the image their own faculty has prepared in answer to that question. Then they should draw or describe that image answer, and then begin exploring the ways in which that image appears to answer that question effectively. Note that even if the image did not in fact relate to the question asked, this procedure would serve as a device to get the flow of both ideas and interaction going. Experimenters are invited to ascertain for themselves whether there are unique relevancies which further the process above and beyond this flow-initiating effect.

Even better results in the early phases of the process will obtain if students are paired to describe to each other their perceptions as they go, in as rich a detail as possible. For any phase of the process seen as difficult, you may want groups of 3 to 5 students to improve the chances that one can respond to initiate and model the flow for the rest. For later phases, groups of 4 to 6 may be used to cross-fertilize mindsets and understandings, and to build toward some formal report to the whole class. Simple procedures for guiding such interactive work are detailed in an earlier issue of this Journal, and spelled out and modelled by example in a simple book for teachers (Wenger, 1984b & 1987e).

While it would be still better to produce such integration through the recommended procedure of paired courses followed by Integration Days, it now appears that individual teachers within the confines of conventionally structured courses can nonetheless accomplish much in the way of productive integration with their students. Through such integration, much previous, current and future learning will become useful and meaningful. We herewith submit this integrative procedure as a potentially major pedagogical technique for accelerating and enriching learning.

In summary we have defined one of possibly many strategies, alternative to or combinable with the Suggestopedic strategy for using the second, deeper than conscious, "plane of awareness" for pedagogically productive purposes. Initial techniques identified from this alternative strategy are easier to apply than is Suggestopedy, and apparently bear upon a wide range of educational aims. We urge formal institutional experimentation to determine the supportability of some very interesting hypotheses regarding brain and mind function, and the act of learning. We predict the results of such experiments will demonstrate the considerable potential of this visual thinking strategy for generating profoundly beneficial pedagogical techniques.

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Dual plan techniques de conscience autre que celui de Lozanov pour l'accélération et l'enrichissement de l'éducation et l'enseignement

Lozanov a démontré que pour donner à la fois l'esprit de conscience et d'inconscience les mêmes données, de telle sorte à ce que les réponses d'un "plan de conscience" ne s'opposent pas à celles d'un autre "plan de conscience" a une valeur thérapeutique ainsi qu'un avantage pédagogique. La description de Lozanov pour la nature et le rôle du "second plan de conscience" est tout à fait consistante virtuellement avec toutes les autres conclusions dan les différentes branches de recherches psychologiques au sujet de "l'esprit inconscient".

Cet écrivain propose la pensée visuelle comme autre stratégie pour engager d'une façon utile les riches sensitivités, renseignements et perceptions, gaudés unconsciencieusement et apparament indisponibles pour l'élève dan ce second "dual plan". Cette pensée visuelle attire peu de phénomènes notables qui nous paraissent à tous. L'écrivain définit des techniques spécifiques, à la fois dans les méthodes d'enseignement et pour teste la tolérence d'un nombre d'hypothèses relatives qui paraissent être de conséquences considerables au humaines.

Doppelflächige Bewußtseintechniken – anders als Lozanov – für schnelles und bereichendes Lernen und Lehren

Lozanov hat gezeigt, daß es therapeutischen und auch pädagogischen Vorteil habe, wenn man sowohl dem bewußten als auch dem unbewußten Gehirn die gleichen Daten gibt, so daß die Antworten "Bewußtseinsfläche" der einen "Bewußtseinsfläche" mit denen der anderen Bewußtseinsfläche" nicht in Konflikt geraten. Lozanovs

Beschreibung der Natur und der Rolle der "zweiten Fläche des Bewußtseins" stimmt überwiegend mit den Ergebenissen andere psychologishcen Forschungen über das Unterbewußtsen überein. Dieser Autor schlägt visuelles Denken als einen andere Strategie vor, um die reichen Sensibilitäten, Informationen und Wahrnehmungen, die unbewußt und scheinbar dem Lernenden unerreichbar in der zweiten "Dualfläche" gehalten werden, zu engangieren. Dieses visuelle Denken schaltet kaum wahrgenommene Phenomäne ein, welche bei uns allen erscheinen. Der autor erklärt bestimmte Arten der Ausführung, welche beides, Lehrmethoden sowie Probe der Glaubhaftigkeit einiger verwandten Hypothesen, welche scheinbar von bedeutender pädagogischer und menschlicher Konsequenz sind.

Técnicas de Conocimiento del Plano Doble, aparte de las de Lozanov, para Acelerar y Enriquecer Enseñanza y Aprendizaje

Lozanov demostró que dando los mismos datos a la mente consciente como a la mente inconsciente, para que las respuestas de un "plano de consciencia" no tengan conflicto con las del otro "plano de consciencia", tiene tanto valor terapéutico como beneficio psicológico. La descripción de Lozanov sobre la naturaleza y el papel del "segundo plano de consciencia" es consistente con prácticamente todos los demás descubrimientos en las varias ramas de investigación psicológica con relación a "la mente inconsciente". El escritor propone pensamiento visual como otra estrategia para utilizar las ricas sensibilidades, información y percepciones, mantenidas inconscientemente y aparentemente inaccesibles al aprendiz en el segundo "plano doble". Tal pensamiento visual ejerce fenómenos que son poco notables pero que aparecen en todos nosotros. El escritor define

técnicas específicas, tanto métodos de enseñanza como de examinar el sostenimiento de hipótesis relacionadas que parecen tener consecuencias pedagógicas y humanas considerables.

BOOK REVIEW

A Teacher's Guide to Whole Brained Learning: The Vision and the Practice, by Peter W. Majoy, 114 pp., 1987. Brain Waves, Box 503, Fitzwilliam, NH 03447. 603-239-6058. $25.00 or $35.00 with tape. Reviewed by John Senatore.

Pondering the table of contents, is this book for you?

Introduction
Opening the 7 Brain Doorways
Style Stretching
Brain Synchronicity
Triune Development
Holophoric Brain Dimension
Love & Challenge
The Unconscious & Right Brain Learning
Chapter Resources
More Whole Brained Activities
Afterword
Bibliography

It is an excellent starting point if you are new to whole-brain learning, are motivated through professional growth to be a great teacher, are comparing resources and sources, are considering networking, want to explore and experiment, or want to examine another model.

Integrating most, if not all, that Majoy presents is his metaphor of "7 Brain Doorways:" The Intellectual Psychic Door, The Analytical Door, The Automatic Door, The Heart Door, The Movement Door, The Clerical Door, The Purposeful Door. He links these doorways (learning styles) to parts of the brain emphasizing that all doorways overlap and "Unless a teacher dances before an already open door(s), learning will be more difficult and in some cases impossible."

Majoy wants company, application of research and methods that work, great teachers, differences that make a difference in schools and increased sensitivity to the fact that "Each individual student has a brain-mind that is both universal and particular." Each section of this spiral-bound, copied text presents condensed information, a model activity to open the 7 Doors and a summary. Key functions that open doorways: imagery, draw, design, list, meditate, elicit emotions, dramatize empathically, review, answer "Why are we doing this?", become what you would understand, write, interpret, present. Essential in these model activities is movement (miming, dancing, acting).

I liked the section on Imagery. Majoy urges those who want to begin whole-brain learning to start with imagery, the route to whole-brain education. "Internal imagery is not only visual," Majoy insists. "There are many imagery states." His learner-interaction activity with the TV delighted me. His section on The Heart-Door: The Right Hemispheric Limbic Brain echoes Leo Buscaglia, yet differs: "It is here that society primes itself for reflective thought and action. Are they motivated by a state of fear or a state of love. (Sic) Both states of motivation can produce thought and action, but only love can underline thought that is liberating of the whole person." I also liked his Chapter Resources, More Whole Brain Learning Activities (in biology, math, language arts). Reading his bibliography, I compared backgrounds, influences and noted sources and resources Majoy does not use or possibly know.

Majoy makes his text earnest, often poetic, sincere, enthusiastic; he cries repeatedly for study and adoption of the materials to produce curricular changes. He states the information in this guide is powerful stuff; "This guide is not a research report...[it] does reflect real classroom experience of almost 20 years...has been used on an everyday basis by me...[so that] what I did as a teacher was immensely rewarding."

For me, now, the text was difficult to stay with on a sustained basis; repeated spelling, punctuation and syntax errors distracted and irritated me, as did single-spaced, crowded pages. This text is best studied and incorporated in existing teaching-learning systems one-piece-at-a-time. Usable, effective, stimulating materials here for the seeker, the motivated.

Images are powerful. We desire and require visions. Majoy's vision of whole-brain learning is more exhortation than compelling images for me. His vision includes great teachers who offer "the pupils the recovery of their lost chances to seize the life of their imagination and make it command the vacancy of the world." He invents the word "Holophors" (holography + metaphor) to remind us "holophores" that we can make richer connections and richer understandings with the whole brain.

I welcome Majoy's grasp, I applaud his study and applications; his reach leaves much for the reader to study, internalize, work to adapt and adopt in specific areas. I recommend this text for examination, reference, discussion, especially for those persons who want help "in their freely chosen transformation," for "The teaching profession needs people who are open, curious, wondering and imaginative..." And risk-takers, whistle-blowers, people with the courage to be whole-brained. Holophores, here's another launching pad!

Book Review

Accelerated Learning by Colin Rose. Dell Publishing Co., Inc., 1 Dag Hammarskjold Plaza, New York, New York, 10017. Dell Trade Paperback: 1987. Reviewed by John Senatore.

"This book presents the background to the development of Accelerated Learning, the evidence, and describes the method step by step", so that "You will be able to try the technique and prove it for yourself." Thus I submit Rose's book may be the popularizing, everything-you-wanted-to-know-initially book about Accelerated Learning.

Chapter 1 deals with the research that re-defines principles of learning for "Your Incredible Brain." Chapters 2, 3, and 4 discuss "The Basis of Memory," "Improving Your Memory," and "Memory Aids," since "There can be no learning without memory." "The Power of Suggestion," Chapter 5, inspects the interconnectedness of imagination and suggestion, differentiates between suggestion and hypnosis, and emphasizes uses and misuses of the presumption that "The subconscious mind cannot differentiate between what is real and what it believes is real."

"The Genesis of Accelerated Learning," Chapter 6, reviews Lozanov and the Lozanov Method and ends with questions that troubled Rose that he answers in subsequent chapters: "What is the Role of Music?" (Chapter 7); "If it works, why aren't more people using it?" (Chapter 8: The Evidence); "Tell Me... does our educational system really teach us to doubt our true ability?" and eleven other questions (Chapter 9). Chapter 10, "The State of the Art," shows that none of Lozanov's principles have been contradicted, but there are pointers to developments and improvements: Among these are

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specific applications of dominant-sensory-systems as researched in Neurolinguistic Programming and Bernice McCarthy's 4-Mat System for identifying types of learners.

"Putting It All Together," (Chapter 11), reminds us that the book was four years in the writing while the author maintained a psychologist's point-of-view "for fresh thinking that every breakthrough must have." Rose summarizes twenty-seven things he learned. "First, Relax!" reviews this new principle of learning, and presents breathing and body exercises for relaxation. Using a language course as an example, Rose uses Chapter 13, "An Accelerated Learning course" so that "you can create your own course for your own learning needs." His headlines reveal the steps and direct us, e.g., "Step Four--Make a 'Mental Movie' of the Text." Chapter 11, "Accelerated Learning for Your Children," deals with preschool, that period before children may have had their latent abilities "schooled out"; again, headlines like "Prepare a Mental Map" serve as clear aids. "How Can You Be Involved?", (Chapter 15), cites ways and promotes Accelerated Learning Systems (N.A.), Inc., Southport, Ct. "Notes for Teachers" (Chapter 16) summarizes all well. Appendix A features the Report of the Paradise Unified School Project (California). Appendix B features prerecorded language courses: Concluding this appendix are contrasting lists that serve well. Appendix C, "Some Current Accelerated Learning Projects," lists Rose's attempt to "audit" Accelerated Learning (progress and applications). Illustrated charts, mental-maps, at the end of each chapter integrate and introduce.

Rose's primer does not contain news for persons who have done their homework and kept up-to-date; it stands as a reminder, reference, example. For people wanting to know about Accelerated Learning--yes, hand them this book, recommend it

Book Review

Teaching for the Two-sided Mind by Linda Verlee Williams. A Touchstone Book (published by Simon & Schuster, Inc., (1986) and by Prentice-Hall, Inc., 1983. Reviewed by John Senatore.

Did you know of this book? I didn't, and I recommend it for your "basic books" shelf when your focus is teaching-learning, education.

Written as "an effort to bridge the gap between research and application," the book presents current research on the functioning of hemispheres, explores the implications of that research for education, provides practical teaching techniques for connecting and developing the right hemisphere because they are less well-known. Williams wrote it for teachers, student-teachers; it is useful for parents, older students and anyone who wants more learning strategies.

In nine clear, readable, practical chapters, Williams achieves her intentions: 1: Learning with the Whole Brain; 2: Scientific Theory and Educational Practice; 3: How Do You Think?; 4: Metaphor; 5: Visual Thinking; 6: Fantasy; 7: Multisensory Learning; 8: Direct Experience; 9: How to Start. Reports of actual applications and specific means for application make this book usable, valuable. Her bibliography offers a "few excellent resources" in ten areas, including "Music-Suggestology." Refreshing for me is the author's admission of limitations and preferences that introduce the Bibliography.

For some, this book will appear clearly pedagogical, not the emotionally involving exhortation, confession, invitation to do differently; for other persons, this book will be what they've been looking for as the source for doing differently.

I recommend starting anywhere in the book that seizes your attention. Chapter 9 grabbed me when I read "The first thing to realize is that you've already started," and "The next thing to realize is that if you really want to make more conscious use of these techniques in the book, it will require effort over time." Consider her "A Few Rules": Go at your own pace. Do what you enjoy. Give yourself every chance for success. And what are the stages in starting? Planning for Change, Starting Now, Intangibles, Rediscovering Your Subject, Working Together, and Support Groups.

In her Conclusion, Williams reminds us that "Children come to school as integrated people...intensely curious. They are scientists, artists, musicians, historians, dancers and runners, tellers of stories and mathematicians. The challenge we face as teachers is to use the wealth they bring to us. They come with a two-sided mind." This book provides teachers with ways to develop both types of thinking, information-processing patterns, so that children "have access to the fullest possible range of mental abilities."

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